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PROGRESS REPORTS FOR 1998 CNC CHARLESTON SC  
1/1/1998  
CNC CHARLESTON

**PROGRESS REPORTS**  
**1998**

Scan  
RFI Progress Reports  
1995-1999  
(Administrative Record)

**PROGRESS REPORTS**  
**1998**



DEPARTMENT OF THE NAVY  
SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
P.O. BOX 190010  
2155 EAGLE DRIVE  
NORTH CHARLESTON, S.C. 29419-9010

5090/11  
Code 1877  
20 April 1998

Mr. John Litton, P.E.  
Director, Division of Hazardous and Infectious Waste Management  
Bureau of Land and Waste Management  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

Subj: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION  
PROGRESS REPORT

Dear Mr. Litton,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition II.C.5 of the RCRA Part B permit issued to the Naval Base Complex by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the months of January through March, 1998. If you have any questions, please contact Billy Drawdy or myself at (803) 743-9985 (Ext. 29) and (803) 820-5525 respectively.

Sincerely,

A handwritten signature in black ink, reading "Matthew A. Hunt".

MATTHEW A. HUNT, P.E.  
Environmental Engineer  
Installation Restoration III

Enclosure: (1) Quarterly RFI Progress Report - January through March 1998  
Copy to (w/encl):  
SCDHEC (Paul Bergstrand, Johnny Tapia)  
USEPA (1) (Dann Spariosu)  
CSO Naval Base Charleston (Billy Drawdy, Daryle Fontenot)

**NAVBASE CHARLESTON  
RFI STATUS REPORT  
PERIOD: SUMMARY OF  
01 January 1998 To 31 March 1998**

**I. INTRODUCTION**

The following quarterly status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

**II. PORTION OF THE RFI COMPLETED**

**General**

The Navy, EnSafe, USGS, and College of Charleston conducted a synoptic water level measuring event on 21 January 1998 which covered a large portion of the Charleston peninsula. The event included 302 wells on Navy property. The data will provide an additional "snapshot" of base wide groundwater flow directions to help evaluate temporal variations.

A technical memorandum discussing methylene chloride, acetone, and bis(2-ethylhexyl)phthalate as potential laboratory/sampling artifacts was submitted to the team in February. The intent of the memo was to support statements made in the RFI reports which identified these compounds as common artifacts of the sampling and analytical process.

The entire base, including the annex, was flown by an aerial photography subcontractor in March to obtain digital ortho photos. The photos will be used to produce a highly accurate digital base map which can be used with GIS software for data presentations.

**Task 2901 - Zone A**

Preparation of the final RFI report continued. The outstanding site specific risk assessments issues were resolved in a meeting with SCDHEC in February. The meeting was arranged in lieu of submitting a technical memo as originally requested. The benefits of the "face to face" meeting are apparent since the need for a separate document submittal and review process were avoided. An agreement was reached at the March project team to review the revised document at the table during the April meeting in an effort to get the report finalized.

A stand-alone risk evaluation was prepared for SWMU 38 in support of an ongoing interim measure being performed by the DET. EnSafe evaluated risk attributable to background and provided several remedial goal options which represent varying levels of risk reduction. The project team will select the cleanup goal considered most appropriate for the site. The hope is that the interim measure will represent the final action necessary at the site.

Groundwater sampling for parameters needed to assess the viability of natural attenuation processes was performed at SWMU 39. The chemical and geochemical data were received in late March and are in the process of being evaluated.

#### **Task 2902 - Zone B**

All tasks for Zone B are 100 percent complete, and no further action is required.

#### **Task 2903 - Zone C**

The draft Zone C CMS work plan was completed to a point where it now awaits only resolution of certain SCDHEC concerns made known during their review of the Zone H CMS work plan, the prototype since it was the first to be submitted. As soon as Zone H is finalized, EnSafe will be able to quickly finalize the Zone C document and submit it to the project team for review.

An agreement was reached at the March project team meeting to review the *Final Zone C RFI Report* at the table during the April meeting in an effort to simplify the review process and get the report approved.

In January, groundwater samples were collected at AOC 522 to screen for the presence of methylene chloride, which was detected in soil at concentrations above the SSL. The results are discussed in Section III below.

#### **Task 2904 - Zone D**

All tasks for Zone D are 100 percent complete, and no further action is required.

#### **Task 2905 - Zone E**

The only activity that occurred in Zone E this period was groundwater sampling for natural attenuation parameters at wells in the vicinities of SWMU 65, SWMU 70, SWMU 172, AOC 563, and a few miscellaneous grid based locations. The chemical and geochemical data were received in late March and are in the process of being evaluated.

#### **Task 2906 - Zone F**

The *Draft Zone F RFI Report* was submitted for review and comment on 13 January 1998.

The project team agreed that the development of a CMS work plan for AOC 607 should be accelerated with the intent of delivering a draft at the April meeting.

Groundwater samples were collected for natural attenuation parameters at wells in the vicinity of the AOC 607, the former drycleaning operation. The chemical and geochemical data were received in late March and are in the process of being evaluated.

#### **Task 2907 - Zone G**

In February, portions of the fuel distribution system were transferred out of the RFI process into the SCDHEC petroleum program where they will be more appropriately addressed due to the nature of the contaminants identified. The project team agreed to continue groundwater monitoring at the three areas not transferred (SWMU 24, AOC 613 vicinity, and AOC 709 vicinity). Four shallow monitoring wells were installed at SWMU 24 during the month of March as part of the agreement.

The Draft Zone G RFI Report was submitted for review and comment on 4 March 1998.

#### **Task 2908 - Zone H**

A partial set of comments pertaining to the *Draft Zone H CMS Work Plan* was received from SCDHEC on 31 January 1998. Subsequently, the Navy, SCDHEC, and EnSafe met to continue resolving outstanding concerns pertaining to the Zone H CMS work plan. As an outcome of the meetings, EnSafe was tasked with performing a risk reduction analysis to determine the cleanup level at which the expenditure of resources would begin to exceed a beneficial rate of return.

#### **Task 2909 - Zone I**

As previously reported, DHEC provided comments pertaining to the draft Zone I RFI report and were discussed at the December team meeting. A proposal for additional field work to address the comments was delivered to members of the project team technical subcommittee via e-mail on December 30, 1997. At the end of January, team member held a conference call to agree on the scope of the additional sampling. Field work completed through the end of the current reporting period includes direct push sampling around grid well 11, installation of 3 shallow monitoring wells at AOC 680, 2 shallow wells at SWMU 177, and collection of groundwater samples from 9 DPT points at AOCs 673, 674, and 681.

In late January groundwater samples were collected from DPT points in the vicinity of grid well pair 11 in an attempt to define the extent of chlorinated solvent contamination. The results are discussed in Section III below.

#### **Task 2910 - Zone J**

A presentation based on the technical memo summarizing first round data was given at the January project team meeting along with discussions regarding the background strategy, prepared by EPA's contractor, TetraTech. In addition to the regular team members, the meeting was attended by representatives from U.S. Fish and Wildlife, NOAA, and the Naval Research Lab. As result of the meeting, a working group consisting of regular team members and the natural resource trustees was formed with the purpose of collectively agreeing on a strategy to determine background.

#### **Task 2911 - Zone K**

The investigation of SWMU 166 continued with the installation of the deep piezometers along I-26. A total of 18 piezometers were installed during this most recent phase of the investigation, which began in December 1997. In addition to collecting groundwater samples for VOC analysis, sampling was also performed for natural attenuation parameters. EnSafe obtained more SC Department of Transportation drawings pertaining to the drainage system installed under I-26, received the survey data for the newly installed wells, and constructed flow nets of the surficial aquifer system.

Similar to AOC 607 in Zone F, the project team agreed that the development of a CMS work plan for SWMU 166 should be accelerated with the intent of delivering a draft at the April meeting.

#### **Task 2912 - Zone L**

The DET completed the dye trace study and presented the results to the project team in January, and the second phase of DPT groundwater sampling was completed. The only field work remaining to be completed at this time is surveying of sample locations. Upon completion of the surveying, the draft RFI report will be prepared.

### **III. SUMMARIES OF FINDINGS**

The latest findings to date are generally summarized and discussed in detail at the monthly project team meetings where handouts including data have been distributed in lieu of presenting the data quarterly in this report. Exceptions to this practice which occurred during this reporting period



are groundwater screening data from AOC 522 in Zone C and from the vicinity of grid well pair 11 in Zone I. Below, each site is discussed briefly, and the data along with a site map can be found in Attachment A.

#### **AOC 522**

**Site History:** Former Building 1252 was a small garage-type structure used for vehicle maintenance in the early 1950s. It was located adjacent to the present Building 198 shipping and receiving warehouse. No visible evidence of the building remains today, and the area is now mainly covered by asphalt. The issue was raised that, while methylene chloride was reported at concentrations above SSLs, no groundwater samples were collected at the site to refute the possibility of migration to groundwater.

**Resolution:** Groundwater samples were collected at 3 locations using DPT. Samples were collected from two depth intervals at each location - at the water table and from 15 to 18 bgs. Samples were sent to an offsite laboratory for analysis for VOCs. No VOCs were detected in any of the samples. The results indicate that if the methylene chloride detected in soil is actually present and not a laboratory artifact, it is not present at a level which presents a leaching concern to groundwater.

#### **Grid Well Pair 11**

**Site History:** Grid well pair 11 was installed as part of the grid based sampling approach for the Zone I RFI. The well pair is located adjacent to the Cooper River side of former Bachelors Officers Quarters. There were no known "sites" in close proximity to this well pair location. Chlorinated volatile organics were detected in the shallow well during each of the four quarterly sampling events. The source of the contamination is unknown.

**Resolution:** Groundwater samples were collected at 5 locations using DPT. Samples were collected from just below the water table since the surficial aquifer is underlain by a continuous marsh clay unit at approximately 15 feet bgs. Samples were sent to an offsite laboratory for analysis for VOCs. No VOCs were detected in any of the samples. The VOC contamination in the shallow grid well 11 appears to be isolated. The presence of daughter products further indicates the contaminants are naturally degrading.

#### **IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD**

There were no known deviations from the approved RFI Work Plans for this reporting period.

#### **V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT**

As of June 1997 the Restoration Advisory Board (RAB) agreed to meet on a bi-monthly basis. Minutes from the February 1998 meeting are enclosed as Attachment B.

#### **VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS**

There were no problems or potential problems identified during this reporting period.

#### **VII. KEY PROJECT PERSONNEL**

There were two changes in key personnel for EnSafe, the Navy's CLEAN contractor, during this period. Mark Bowers, the lead human health risk assessor, was replaced by Ron Severson. David Trimm, the lead ecological risk assessor, was replaced by Jay Cornelius.

#### **VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD**

##### **Document Preparation and Data Evaluation:**

- The *Final Zone A RFI Report*, *Final Zone C RFI Report*, and *Final Zone H CMS Work Plan* are all scheduled to be reviewed at the table during the April project team meeting.
- The draft CMS work plans for SWMU 166 and AOC 607 will be submitted at the April project team meeting.
- Following final approval of the Zone H CMS Work Plan the draft CMS work plans for Zones A and C will be submitted to the team for review.
- The subcommittee formed to develop the background strategy for Zone J will continue their efforts.

- Preparation of the draft Zone L RFI report will continue.
- Evaluation of the monitored natural attenuation data collected for a number of sites across multiple zones will continue.

**Field Activities:**

- Quarterly groundwater monitoring will continue in all zones where less than four quarters of sampling has been completed.
- Field work for the Zone H CMS is anticipated to begin.
- Additional soil sampling to complete the Zone I RFI will occur in April.
- Additional groundwater monitoring will be performed in Zone G at SWMU 24, AOC 613, and AOC 709.

**IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA**

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe office in Charleston and is available for review.

**X. CORRECTIVE ACTION MANAGEMENT PLAN (CAMP)**

As agreed upon by the project team, the CAMP will be updated and submitted quarterly as part of the *Quarterly RFI Status Report*. The baseline schedule presented in the CAMP was revised in October 1997 and submitted as Appendix F-15 of the RCRA Part B permit renewal submitted to SCDHEC. The current submittal (Attachment C) dated April 15, 1998 is labeled Revision 02 and it reflects updates based on progress made during the last quarter. The "baseline" schedule is represented by the dates identified as scheduled start and finish dates. These dates did not change from the previous version of the CAMP since they are intended to be used as a means to measure progress (or lack thereof) since October 10, 1997 when the format of the CAMP was changed. Regulatory dates are determined by the "actual" start dates and specified durations to complete the

tasks. The regulatory dates may or may not correspond to the scheduled dates depending on whether tasks performed since October 10, 1997 were completed on time.

Changes made to the CAMP are as follows:

Zone F - A start date of 15 January 1998 was added for the regulatory review of the draft RFI report.

Zone G - A finish date of 4 March 1998 was added for the draft RFI report. A start date of 5 March 1998 was added for the regulatory review of the draft RFI report.

Zone H - A finish date of 5 March 1998 was added for the comment period for the CMS work plan (the finish reflects the date of the meeting in Columbia). A new line was added for document revision period to reflect the ongoing discussions and upcoming document review meeting in April. The dates added were: Scheduled Start - 6 March 1998; Scheduled Finish 14 April 1998; Actual Start - 6 March 1998.

Zone I - A new line was added to address the second phase of RFI field work needed to fill data gaps identified during review of the RFI report. The dates added were: Scheduled Start - 13 January 1998; Scheduled Finish 12 May 1998; Actual Start - 12 January 1998.

Zone J - A start date of 12 January 1998 was added for the start date of the background study. The start reflects the date of the meeting held in January at which the strategy was discussed.

DATACP3  
04/10/98

CHARLESTON - ZONE C  
CHARLESTON ZONE C - QUARTERLY SAMPLING  
AOC 522 - Groundwater Screening Data

Page: 1  
Time: 11:01

SW846-VOA		SAMPLE ID ----->	522-G-P001-01	522-G-P001-02	522-G-P002-01	522-G-P002-02	522-G-P003-01	522-G-P003-02
		ORIGINAL ID ----->	522GP00101	522GP00102	522GP00201	522GP00202	522GP00301	522GP00302
		LAB SAMPLE ID ---->	32604.05	32604.06	32604.03	32604.04	32604.01	32604.02
		ID FROM REPORT -->	522GP00101	522GP00102	522GP00201	522GP00202	522GP00301	522GP00302
		SAMPLE DATE ----->	01/26/98	01/26/98	01/26/98	01/26/98	01/26/98	01/26/98
		DATE ANALYZED ---->	02/02/98	02/02/98	02/02/98	02/02/98	02/02/98	02/02/98
		MATRIX ----->	Water	Water	Water	Water	Water	Water
		UNITS ----->	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
CAS #	Parameter		32604	32604	32604	32604	32604	32604
74-87-3	Chloromethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
74-83-9	Bromomethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-01-4	Vinyl chloride	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-00-3	Chloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-09-2	Methylene chloride	5. U	5. U	5. U	5. U	5. U	5. U	5. U
67-64-1	Acetone	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-15-0	Carbon disulfide	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-35-4	1,1-Dichloroethene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-34-3	1,1-Dichloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
540-59-0	1,2-Dichloroethene (total)	5. U	5. U	5. U	5. U	5. U	5. U	5. U
67-66-3	Chloroform	5. U	5. U	5. U	5. U	5. U	5. U	5. U
107-06-2	1,2-Dichloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
78-93-3	2-Butanone (MEK)	5. U	5. U	5. U	5. U	5. U	5. U	5. U
71-55-6	1,1,1-Trichloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
56-23-5	Carbon tetrachloride	5. U	5. U	5. U	5. U	5. U	5. U	5. U
108-05-4	Vinyl acetate	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-27-4	Bromodichloromethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
79-34-5	1,1,2,2-Tetrachloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
78-87-5	1,2-Dichloropropane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
10061-02-6	trans-1,3-Dichloropropene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
79-01-6	Trichloroethene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
124-48-1	0ibromochloromethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
79-00-5	1,1,2-Trichloroethane	5. U	5. U	5. U	5. U	5. U	5. U	5. U
71-43-2	Benzene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
10061-01-5	cis-1,3-Dichloropropene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
110-75-8	2-Chloroethyl vinyl ether	5. U	5. U	5. U	5. U	5. U	5. U	5. U
75-25-2	Bromoform	5. U	5. U	5. U	5. U	5. U	5. U	5. U
591-78-6	2-Hexanone	5. U	5. U	5. U	5. U	5. U	5. U	5. U
108-10-1	4-Methyl-2-Pentanone (MIBK)	5. U	5. U	5. U	5. U	5. U	5. U	5. U
127-18-4	Tetrachloroethene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
108-88-3	Toluene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
108-90-7	Chlorobenzene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
100-41-4	Ethylbenzene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
100-42-5	Styrene	5. U	5. U	5. U	5. U	5. U	5. U	5. U
1330-20-7	Xylene (Total)	5. U	5. U	5. U	5. U	5. U	5. U	5. U
1634-04-4	Methyl tert-butyl ether	NR	NR	NR	NR	NR	NR	NR

DATACP3  
04/10/98

CHARLESTON - ZONE I  
CHARLESTON ZONE I  
Grid Well 11 & 11D Volatile Data

Page: 1  
Time: 11:11

SW846-VDA		SAMPLE ID ----->	GD1-G-W011-01	GD1-G-W11D-01				
		ORIGINAL ID ----->	GD1GW01101	GD1GW11D01				
		LAB SAMPLE ID ---->	720427	728940				
		ID FROM REPORT -->	GD1GW01101	GD1GW11D01				
		SAMPLE DATE ----->	05/19/95	06/07/95				
		DATE ANALYZED ---->	06/03/95	06/12/95				
		MATRIX ----->	Water	Water				
		UNITS ----->	UG/L	UG/L				
CAS #	Parameter	0007V	VAL	0010V	VAL			
100-41-4	Ethylbenzene	10.	UJ	10.	U			
100-42-5	Styrene	5.	UJ	5.	U			
10061-01-5	cis-1,3-Dichloropropene	15.	UJ	15.	U			
10061-02-6	trans-1,3-Dichloropropene	10.	UJ	10.	U			
107-06-2	1,2-Dichloroethane	5.	UJ	5.	U			
108-05-4	Vinyl acetate	10.	UJ	10.	U			
108-10-1	4-Methyl-2-Pentanone (MIBK)	10.	UJ	10.	U			
108-88-3	Toluene	5.	UJ	5.	U			
108-90-7	Chlorobenzene	10.	UJ	10.	U			
124-48-1	Dibromochloromethane	10.	UJ	10.	U			
127-18-4	Tetrachloroethene	4.	J	10.	U			
1330-20-7	Xylene (Total)	15.	UJ	15.	U			
540-59-0	1,2-Dichloroethene (total)	2.	J	10.	U			
56-23-5	Carbon tetrachloride	10.	UJ	10.	U			
591-78-6	2-Hexanone	15.	UJ	15.	UJ			
67-64-1	Acetone	23.	UJ	15.	U			
67-66-3	Chloroform	5.	UJ	5.	U			
71-43-2	Benzene	10.	UJ	10.	U			
71-55-6	1,1,1-Trichloroethane	10.	UJ	10.	U			
74-83-9	Bromomethane	10.	UJ	10.	U			
74-87-3	Chloromethane	15.	UJ	15.	UJ			
75-00-3	Chloroethane	10.	UJ	10.	U			
75-01-4	Vinyl chloride	10.	UJ	10.	U			
75-09-2	Methylene chloride	20.	UJ	10.	U			
75-15-0	Carbon disulfide	9.	J	10.	U			
75-25-2	Bromoform	10.	UJ	10.	U			
75-27-4	Bromodichloromethane	10.	UJ	10.	U			
75-34-3	1,1-Dichloroethane	2.	J	5.	U			
75-35-4	1,1-Dichloroethene	5.	UJ	5.	U			
75-69-4	Trichlorofluoromethane	10.	UJ	10.	UJ			
78-87-5	1,2-Dichloropropane	10.	UJ	10.	U			
78-93-3	2-Butanone (MEK)	20.	UJ	20.	UR			
79-00-5	1,1,2-Trichloroethane	5.	UJ	5.	U			
79-01-6	Trichloroethene	6.		5.	U			
79-34-5	1,1,2,2-Tetrachloroethane	10.	UJ	10.	U			
107-02-8	Acrolein	90.	UJ	90.	U			
354-58-5	1,1,1-trichloro-2,2,2-trifluoromethane	15.	UJ	15.	U			

\*\*\* Validation Complete \*\*\*



DEPARTMENT OF THE NAVY  
SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
P.O. BOX 180010  
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NORTH CHARLESTON, S.C. 29419-9010

5090/11  
Code 1877  
22 July 1998

Mr. John Litton, P.E.  
Director, Division of Hazardous and Infectious Waste Management  
Bureau of Land and Waste Management  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

Subj: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION  
PROGRESS REPORT

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Sincerely,

MATTHEW A. HUNT, P.E.  
Environmental Engineer  
Installation Restoration III

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Copy to (w/encl):  
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**NAVBASE CHARLESTON  
RFI STATUS REPORT  
PERIOD: SUMMARY OF  
01 April 1998 To 30 June 1998**

**I. INTRODUCTION**

The following quarterly status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

**II. PORTION OF THE RFI COMPLETED**

**General**

As previously reported, Atlantic Technology was subcontracted to "fly" the base for purposes of taking digital ortho photos to be used in the preparation of an accurate base map. Digital maps have been generated for both the main portion of NAVBASE and the annex. The maps were delivered in multiple "sheets" or subdivided portions that have to be pieced together to create a single base map for the annex (Zone K) and a single map for the main portion of NAVBASE. To date the base map for the annex has been completed and work is underway to complete the base map for the main portion of NAVBASE.

Fact sheet number 12 was delivered on 13 May 1998. The fact sheet provides an overview of the activities in Zones D, F, and G.

On 28 May 1998, SCDHEC issued public notice for the draft Part B permit for NAVBASE.

At the June project team meeting the Navy delivered a memo summarizing the baseline data collected to date for the monitored natural attenuation (MNA) effort which involves multiple sites and multiple zones. The memo was followed up by a proposal to the team regarding site specific recommendations for future actions. Review of the proposal is pending since it was not forwarded to the team until the last week of the quarterly reporting period.

The initial 4 quarters of groundwater sampling has been completed at nearly all the 400+ wells at NAVBASE. Quarterly events remain to be completed at some of the wells recently installed. Attachment A provides a summary of the quarterly monitoring effort for all zones.



**Task 2901 - Zone A**

In April 1998, a revised Zone A RFI report was submitted which combined the original report, an addendum which had been submitted separately for SWMUs 1, 2, and 39, and changes made per regulatory agency comments on both those documents. Additional comments were received verbally from SCDHEC at the June project team meeting and during a conference call held on 29 June 1998. These comments were still being incorporated into the document at the end of the current reporting period.

Baseline data for the ongoing monitored natural attenuation evaluation at SWMU 39 was delivered to the project team at the April 1998 meeting. The goal (which was successfully attained) was to obtain feedback regarding the content of the presentation to establish a format for future monitored natural attenuation data presentations for other sites throughout the base.

The *Draft Zone A CMS Work Plan* was shipped to the regulatory agencies on 10 June 1998 for their review and comment. Review of the work plan was assigned top priority over other project documents in an effort by the team to get corrective measures underway as expeditiously as possible.

**Task 2902 - Zone B**

All tasks for Zone B are 100 percent complete, and no further action is required.

**Task 2903 - Zone C**

The *Final Zone C RFI Report* was reviewed at the table during the April project team in an effort to streamline the review process by making the authors available to answer questions raised by the reviewers. While the goal of obtaining approval of the document at the meeting was not achieved, the process was still very successful in that concerns identified were quickly resolved in the weeks following the meeting and the document was approved by the regulatory agencies on 5 May 1998.

The *Draft Zone C CMS Work Plan* was delivered to the Navy on 24 June 1998 for review and approval. This represents a significant achievement since the document was submitted in less than 60 days following the approval of the RFI report which is much earlier than the 90 day requirement specified in the permit.

**Task 2904 - Zone D**

All tasks for Zone D are 100 percent complete, and no further action is required.

**Task 2905 - Zone E**

Very little activity occurred in Zone E during the current reporting period since the draft RFI reports remains in the review process. Progress was made regarding the ongoing

SWMU 25 interim measure and the need to collect samples from the electrical vault outside building 44. Previously work was at a standstill due to SCE&G concerns about "contamination" and the Navy's concern over energized lines in the vault. Arrangements have been made for "wipe" samples to be collected via a non-intrusive method. The data will be used to make a determination of the appropriate personal protective equipment (PPE) needed so that SCE&G personnel can enter the vault to work on the electrical lines.

#### **Task 2906 - Zone F**

The *Draft AOC 607/SWMU 166 CMS Work Plan* was submitted for review and comment to SCDHEC and USEPA at the April project team meeting. The conceptual approach used for development of the work plan was discussed at the meeting in an effort to provide the reviewers some background information prior to looking at the document. Preliminary comments were received from SCDHEC at the June project team meeting. Subsequent to receipt of the comments a conference call was held between the authors of the document and the reviewers in a pro-active attempt to resolve issues prior to committing anything to writing which will require another review cycle

#### **Task 2907 - Zone G**

Groundwater data from the recent sampling of the new monitoring wells installed at SWMU 24 and the existing wells at AOCs 613 and 709 was received. These sites address the portions of the fuel distribution system that could not be transferred from the RCRA program to the petroleum program. Eventually the data will be formally presented in the Zone F and G RFI reports after comments are received on the draft versions of those documents.

#### **Task 2908 - Zone H**

The *Final Zone H CMS Work Plan* was approved by SCDHEC on 8 May 1998 and field work activities commenced on 18 May 1998. As of 30 June 1998 all soil sampling and deep well installations outlined in the plan had been completed.

At the May project team meeting SCDHEC requested that information related to the ongoing attempt to close out the AOC 667/SWMU 138 site be compiled into a revision to the RFI report. The submittal identified as Revision 01 to the *Final Zone H RFI Report* was delivered to the agencies on 18 June 1998 for review and comment.

#### **Task 2909 - Zone I**

In response to comments on the draft RFI report, additional sampling was performed at SWMU 177, AOC 672, AOC 673, AOC 685, AOC 687, AOC 688, and AOC 690 in an effort to fill data gaps. The data was presented at the June project team and the team agreed no further sampling was required pending reviewing of the revised RFI report with the exception of SWMU 177 and AOC 680. Additional soil sampling was proposed for

SWMU 177 and discussions are continuing regarding coordination of RFI and UST program activities at AOC 680.

**Task 2910 - Zone J**

As an action item from the January 1998 project team meeting, the Navy was tasked to further evaluate the data presented in the *Zone J Technical Memorandum*. Several statistical methods such as normalization to grain size and total organic carbon along with a trend analysis proved inconclusive with respect determining the Navy's potential contribution to contaminants observed in sediments. Concurrent with the RFI, the Naval Research Laboratory (NRL), in collaboration with researchers from several universities, have been performing studies on physical dynamics of the Zone J water bodies and microbial PAH degradation. Representatives from SOUTHDIV, NRL, and EnSafe met in late June to assess data gaps in the Zone J RFI and possibly redirect the focus of future data collections efforts. A proposal for additional work will be submitted to team members and the Natural Resource Trustees for discussion prior to any further work being done.

**Task 2911 - Zone K**

The RFI at SWMU 166 continued throughout the reporting period. In April, additional information was obtained from the South Carolina Department of Transportation regarding the construction details of the road cut and drainage system installed under I-26. A presentation of the observed effects of the drainage system on local groundwater flow was given at the April project team meeting. During this time frame additional chemical data was presented and the team agreed to install 2 additional wells in an area upgradient of the suspected source. Upon receipt of the groundwater data from those wells the team will decide whether the site has been adequately characterized so the RFI report can be prepared.

As mentioned above under Zone F, a combined CMS work plan was prepared for SWMU 166 and AOC 607. Comments on the draft have been received and the document is in the process of being revised.

**Task 2912 - Zone L**

RFI field work was declared finished in mid-May when surveying of data points was believed to be complete. As data compilation efforts began it was discovered that not all points had been surveyed. Efforts to complete the surveying have been underway concurrent with preparation of the draft report. The Navy Environmental Detachment (DET) prepared a report describing the results of the cross connect/dye trace study. The report was submitted in early June to SOUTHDIV's contractor, EnSafe, for inclusion in the RFI report.

### **III. SUMMARIES OF FINDINGS**

The latest findings to date are generally summarized and discussed in detail at the monthly project team meetings where handouts including data have been distributed in lieu of presenting the data quarterly in this report. Project team meeting minutes with the meeting handouts are maintained at the project team office located on Naval Base Charleston.

### **IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD**

There were no known deviations from the approved RFI Work Plans for this reporting period.

### **V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT**

As of June 1997 the Restoration Advisory Board (RAB) agreed to meet on a bi-monthly basis. Minutes from the April 1998 meeting is enclosed as Attachment B.

### **VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS**

There were no problems or potential problems identified during this reporting period.

### **VII. KEY PROJECT PERSONNEL**

There were no changes in key project personnel during this reporting period.

### **VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD**

#### **Document Preparation and Data Evaluation:**

- The *Final Zone A RFI Report* is scheduled to be submitted in July.
- Comments on the *Draft Zone A CMS Work Plan* are anticipated. Upon receipt the document will be finalized.
- Comments on the *Draft Zone C CMS Work Plan* are anticipated. Upon receipt the document will be finalized.
- The *Final SWMU 166/AOC 607 CMS Work Plan* will be submitted for approval.

- The *Final Zone I RFI Report* will be submitted for review, comment, and approval.
- The *Draft SWMU 166 RFI Report* will be submitted for review and comment.
- The *Draft Zone L RFI Report* will be submitted for review and comment.
- Evaluation of the monitored natural attenuation data will continue.

#### **Field Activities:**

- Zone A CMS field work is expected to begin.
- Zone H CMS field work is will continue.
- An additional round of baseline monitored natural attenuation data is scheduled to be collected.
- CMS field work for SWMU 166 and AOC 607 is expected to begin.

#### **IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA**

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe office in Charleston and is available for review.

#### **X. CORRECTIVE ACTION MANAGEMENT PLAN (CAMP)**

As agreed upon by the project team, the CAMP will be updated and submitted quarterly as part of the *Quarterly RFI Status Report*. The baseline schedule presented in the CAMP was revised in October 1997 and submitted as Appendix F-15 of the RCRA Part B permit renewal submitted to SCDHEC. The current submittal (Attachment C) dated July 15, 1998 is labeled Revision 03 and it reflects updates based on progress made during the last quarter. The "baseline" schedule is represented by the dates identified as scheduled start and finish dates. These dates did not change from the previous version of the CAMP since they are intended to be used as a means to measure progress (or lack thereof) since October 10, 1997 when the format of the CAMP was changed. Regulatory dates are determined by the "actual" start dates and specified durations to complete the tasks. The regulatory dates may or may not correspond to the scheduled dates depending on whether tasks performed since October 10, 1997 were completed on time.

Changes made to the CAMP are as follows:

Zone A - Schedule dates for the CMS were added. A start date for the draft CMS work plan was assigned based on the initial scoping meeting held in June 1997. The work plan was submitted on 10 June 1998 which is the date the remaining scheduled start/scheduled finish dates are dependent upon using standard durations agreed upon by the team. Actual dates were also added for the regulatory review and comments received/document approved tasks.

Zone C - Under the RFI report section, the report approval date of 5 May 1998 was added. Under the CMS work plan section, scheduled start/finish and actual start/finish dates were added.

Zone F - The CMS portion of the CAMP was updated to reflect dates associated with the CMS work plan prepared for AOC 607.

Zone H - Under the CMS portion dates were added to reflect the actual start/finish for approval of the CMS work plan and the actual start of CMS field work.

Zone I - An actual finish date of 10 June 1998 was assigned to the "additional field investigation" task.

Zone K - The CMS portion of the CAMP was updated to reflect dates associated with the CMS work plan prepared for SWMU 166.

Zone L - A start date of 16 May 1998 was added for the start date of the draft RFI report.

## GROUNDWATER MONITORING PROJECT

This project samples groundwater wells segregated in eleven (11) zones throughout the Naval Base Complex to analyze for hazardous materials that have leached into the water table. Ensafé is contracted by the Navy to establish the monitoring plan and to monitor all wells quarterly for a total of four quarters. Ensafé typically will accomplish the initial sampling cycle (1st quarter) in each zone and the detachment will perform the remaining follow-up sampling cycles. Currently the detachment has been funded and authorized to complete sampling Zones A,B,C,D,E,F,G,H,I and K. Funding and authorization for Zone L is expected to be awarded to the detachment.

<u>ZONE</u>	<u>SCHED START</u>	<u>SCHED COMP</u>	<u>ESD/[ASD]</u>	<u>ECD/[ACD]</u>	<u>% COMP</u>	<u># WELLS</u>
<b>A</b>	FY96					
(QTR. II)	03/04/96	06/04/96	[04/22/96]	[04/29/96]	100%	26
(QTR. III)	06/04/96	09/04/96	[06/19/96]	[06/26/96]	100%	
(QTR IV)	09/04/96	12/04/96	[10/04/96]	[10/18/96]	100%	
<b>A - ADDENDUM I</b>	FY97					
(QTR I)			[10/10/96]	[10/16/96]	100%	11
(QTR II)	01/17/97	04/16/97	[03/10/97]	[03/12/97]	100%	11
(QTR III A5)	04/17/97	07/16/97	[07/07/97]	[07/31/97]	100%	16
(QTR IV)	07/17/97	10/16/97	[10/03/97]	[10/05/97]	100%	16
<b>A - ADDENDUM II</b>	FY97					
(QTR I)				[02/07/97]	100%	6
(QTR II)	03/03/97	06/02/97	[03/20/97]	[03/21/97]	100%	6
(QTR III A5)	06/03/97	09/02/97	[07/07/97]	[07/17/97]	100%	7
(QTR IV)	09/03/97	12/02/97	[10/03/97]	[10/05/97]	100%	7
<b>B</b>	FY96					
(QTR. II)	03/04/96	06/04/96	[04/22/96]	[05/02/96]	100%	6
(QTR. III)	06/04/96	09/04/96	[06/19/96]	[06/26/96]	100%	
(QTR IV)	09/04/96	12/04/96	[10/04/96]	[10/18/96]	100%	
<b>C</b>	FY96					
(QTR. III)	03/04/96	06/04/96	[05/06/96]	[05/15/96]	100%	30
(QTR. IV)	06/04/96	09/04/96	[06/07/96]	[06/17/96]	100%	
<b>D, F &amp; G</b>	FY97 - (NOTE: 11 QIII WELLS REQ'D RESAMPLING DUE TO UPS STRIKE)					134
(QTR. II)			[04/22/97]	[06/18/97]	100%	134
(QTR. III)	06/19/97	09/18/97	[08/11/97]	[09/18/97]	100%	87
(QTR IV)	09/19/97	12/18/97	[10/28/97]	[12/16/97]	100%	76
<b>D, F &amp; G - ADDENDUM I</b>	FY97					10
(QTR. II)			[08/11/97]	[09/18/97]	100%	
(QTR. III)	09/19/97	12/18/97	[10/28/97]	[12/16/97]	100%	
(QTR IV)	12/19/97	03/18/98	[02/09/98]	[02/12/98]	100%	
<b>E</b>	FY96					
(QTR. II)	06/19/96	09/19/96	[07/01/96]	[08/19/96]	100%	175
(QTR. III)	09/19/96	12/19/96	[10/28/96]	[12/17/96]	100%	171
(QTR IV)	12/19/96	03/19/97	[01/07/97]	[02/27/97]	100%	171

BENCHMARK = 21 (21.5) WELLS PER WEEK WITH 4 SAMPLERS  
= 4.2 WELLS PER DAY WITH 4 SAMPLERS

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<u>ZONE</u>	<u>SCHED START</u>	<u>SCHED COMP</u>	<u>ESD/[ASD]</u>	<u>ECD/[ACD]</u>	<u>% COMP</u>	<u># WELLS</u>
<b>E - ADDENDUM I</b> FY97						14
(QTR I)				[11/01/96]		
(QTR II)	02/08/97	05/09/97	[03/03/97]	[03/06/97]	100%	
(QTR III)	05/10/97	08/08/97	[06/23/97]	[06/27/97]	100%	
(QTR IV)	08/09/97	11/07/97	[10/06/97]	[10/09/97]	100%	
<b>H</b> FY96						
(QTR IV)	07/10/95	10/10/95	[03/08/96]	[04/17/96]	100%	97
<b>I</b> FY96						
(QTR. III)	03/04/96	06/04/96	[05/15/96]	[06/05/96]	100%	55
(QTR. IV)	06/04/96	<b>09/04/96</b>	[08/19/96]	<b>[09/13/96]</b>	100%	
<b>K</b> FY97						
(QTR I)				[01/06/97]		
(QTR II)	01/07/97	04/06/97	[04/16/97]	[04/18/97]	100%	8
(QTR III)	04/07/97	<b>07/06/97</b>	<b>[07/23/97]</b>	<b>[07/30/97]</b>	100%	
(QTR IV)	07/07/97	10/06/97	<b>[10/14/97]</b>	<b>[10/23/97]</b>	100%	
<b>K - ADDENDUM I</b> FY97 (Using Funds from Reduction in D,F &G)						
SPECIAL ROUND			[05/22/97]	[05/23/97]	100%	8
(QTR I)			[07/23/97]	[07/30/97]	100%	18
(QTR II)	07/31/97	10/30/97	[10/14/97]	[10/23/97]	100%	
(QTR III)	10/31/97	01/31/98	[01/14/98]	[01/23/98]	100%	
(QTR IV)	01/31/98	04/30/98	[04/07/98]	[04/21/98]	100%	
<b>K - ADDENDUM II</b> FY98 (Using Funds from Reduction in D,F &G)						
(QTR II)			[04/07/98]	[04/21/98]	100%	18
(QTR III)			07/20/98	07/24/98		
(QTR IV)			10/19/98	10/23/98		
<b>K - CLOUTER ISLAND</b> FY97 (Using Funds from reduction in wells on D,F&G)						
(QTR III)			[12/17/97]	[01/13/98]	100%	7
(QTR IV)	01/10/98	03/09/98	[03/17/98]	[03/19/98]	100%	
<b>L</b>						
(QTR I)			[07/24/97]	[09/11/97]	100%	12
(QTR II)	07/06/98	10/05/98	07/13/98	07/20/98		
(QTR III)	10/06/98	01/05/99	10/19/98	10/26/98		
(QTR IV)	01/06/99	04/05/99	01/12/99	01/20/99		

**ESD = Estimated Start Date**

**[ASD]= Actual Start Date**

**ECD = Estimated Completion Date**

**[ACD ]= Actual Completion Date**

**BENCHMARK = 21 (21.5) WELLS PER WEEK WITH 4 SAMPLERs**  
**= 4.2 WELLS PER DAY WITH 4 SAMPLERs**

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NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING  
Minutes of 14 April 1998

LIVE OAK COMMUNITY CENTER, 2012 SUCCESS ST., N. CHARLESTON, SC

1. Introduction of the RAB members and Guests

Mr. Daryle Fontenot, Navy Co-Chair, brought the meeting to order at 6:00 p.m. He began by introducing himself. Member and audience introductions were made.

2. RAB Members Attending

Mr. Steve Best	Mr. Donald Harbert
Mr. Daryle Fontenot	Mr. Dann Spariosu
Mr. Wilburn Gilliard	Ms. Ann Clark
Ms. Jeri Johnson	Mr. Bob Veronee
Mr. Louis Mintz	
Mr. Bobby Dearheart	
Mr. Tom Fressili	

3. Guests Attending

Mr. Tony Hunt	NAVFAC, Southern Division
Ms. Susan Dunn	Grassroots/RDA
Mr. Larry Bowers	EnSafe, Inc.
Mr. Joseph M. Land, Sr.	Galileo Quality Institute
Mr. Henry Shepard, NAVFAC	Southern Division
Mr. W.A. Drawdy, NAVFAC	Southern Division
Mr. Jack Sprott	RDA
Mr. Gabriel L. Magwood	NAVFAC, Southern Division
Mr. Johnny Tapia	SCDHEC
Mr. Paul M. Bergstrand	SCDHEC
Mr. Leroy Carr	Chicora/Cherokee
Rev. Burnet Jacques	Burning Bush Church
Mr. Keith Johns	EnSafe, Inc.

4. Administrative Remarks and Discussion of Last Meeting Minutes

Mr. Fontenot asked for comments on the minutes from the February meeting. No comments were made on the minutes.

5. Subcommittee Reports

*Community Relations Subcommittee*

Mr. Fontenot reported on the Community Relations Subcommittee. He advised the RAB that the subcommittee had started work on a fact sheet for the investigative results for Zones F, G, and K,

which will be mailed in May.

There were no other subcommittee reports.

6. Environmental Cleanup Progress Report

*Asbestos and Lead Based Paint Program*

Mr. Fontenot reported that the Navy is completing the surveys and about to get into the abatement of asbestos and lead-based paint in housing units and underground storage tanks.

*Underground Storage Tanks*

In a brief update on the Underground Storage Tank (UST) program, Mr. Fontenot noted that the work at one tank at the Chicora Tank Farm has been completed. He noted that there were five remaining and, tentatively, the Navy will start in May with cleaning and abandonment of pipelines, followed by demolition of the tanks.

Mr. Fontenot turned the meeting over to Mr. Tony Hunt (Southern Division) to provide a progress report on the Resource Conservation and Recovery Act (RCRA) Facility Investigation.

*RCRA Facility Investigation (RFI) Update*

Mr. Hunt reviewed Fact Sheet 11, which summarized the results of the RCRA Facility Investigation at Zone E. Mr. Hunt explained that, through the investigative process, the Navy (principally the Naval Facilities Engineering Command - NAVFAC) determines what chemicals are potentials for concern and where they are. The next step is to do a risk assessment, which helps answer the questions of whether cleanup should be undertaken, what cleanup levels should be and the methods of cleanup.

The investigation results are published in the summarized form of whether or not a risk or hazard is present. Those numbers tell us the severity of the hazards from those chemicals. Mr. Hunt further explained that the chart lists the sites, site descriptions, results of the sampling, the matrix affected (such as soil, water, or sediment), and whether the site is being recommended for Corrective Measures Study (CMS). Mr. Hunt advised that NAVFAC took the initiative to cleanup some obviously contaminated sites without lengthy delays.

Ms. Johnson advised that members of the public expressed concerns about particular buildings to the Navy and, thereafter, a bulldozer demolished those buildings. Mr. Fressili also stated there were compliance issues on those particular buildings.

7. Public Participation in RCRA

Mr. Tapia made his presentation on how public participation takes place within the RCRA process. One objective is to seek community involvement by promoting and enhancing opportunities for public awareness. That the objective of a better, less costly and more meaningful cleanup is

achieved by involving the public in the process and hopefully preventing complications in the future. RCRA does not have regulations requiring public participation, but has several very specific recommendations. Another thing that drives public participation is guidance from EPA.

When drafting or modifying a permit, there are public participation requirements. The corrective action process is very closely tied with permit modification. After selecting a remedy, that remedy requires a permit. Some other permit modifications are schedule of compliance, scope of work. When RCRA decides to interface a unit that requires permit modification, the public has to concur before it's accepted.

The public notice for Naval Base Charleston will come out in the next 30 days, and is followed by a 45-day public comment period. Notices of the comment period will be given through the radio, newspaper, and mailing list.

In compliance with this guidance, the Charleston Naval Complex has created a RAB forum of community members, provided monthly investigation updates, interim measures updates, report summaries, fact sheets, an information repository, training workshops, site visits and has been in contact with local authorities.

In response to a question, the draft permit is going to encompass 40 pages, with 20 pages of appendixes. In response to another question, the Charleston Naval Base RCRA permit recently expired, having been only good for five years. After the Navy Base closed, it switched from managing waste to only the corrective action. The permit will need to be modified for each remedy for each zone with public notifications and comment periods, after which NAVFAC makes decisions on all the comments. Also, what the department might think is the most appropriate remedy, at the end of the comment period, they might change their mind.

#### 8. Reuse Update

Ms. Jeri Johnson introduced Jack Sprott, Director of the RDA, and Susan Dunn, recently appointed to the RDA. Mr. Sprott spoke about the progress in revitalizing the base: 70 percent full, with 60 percent commercial tenants and 10 percent federal tenants. Mr. Sprott provided information on the Fluors-Daniel feasibility business plan. He has copies of the study and will make them available if asked. The purpose of hiring Fluors-Daniel was to map out a market-driven plan that could redevelop the base.

The original Suzaki land use plan had three scenarios:

- 1) Leave the base as is, invest as little as possible to maintain it and make it liveable.
- 2) The second scenario was a combination of public open space and retail areas.
- 3) Scenario 3-A was the most controversial, giving half the land to the Ports Authority as a giant container port. The Suzaki people later changed this to industrial space (Scenario 3-B).

Fluors-Daniel said the land use plan should be a blend of scenarios 1 and 3-A.

Mr. Sprott showed a color-coded map of the base and discussed each area.

- Area 1, owned by Space World, is 77 acres.
- Area 5 is 101 acres and will be opened for parking lots. Buildings 7, 8, 2, 3, and 4 will be used as office space. The large parking area and the warehouses off of Macmillan some day will be a nice office park.
- Areas 6 and 7 contain the community recreation, swimming pools and tennis courts, and will remain recreational. The academic magnet school is already there.
- Area 8, 157 acres, is the shipyard, which needs to be renovated.
- Space World is in Area 9, except for one building.
- Carolina Marine Handling is in Area 10. There are maritime industrial, cargo, automobile cargo, and break bulk operations there now, along with public works.
- District 11 is the old fuel farm near the viaduct. The risk was considered entirely too great to make it an operational fuel facility. That will be leveled to the ground and then build to suit a future tenant.
- Area 12 contains lots of piers. It is 60 percent occupied with government buildings. The suggested use is to continue the office training campus atmosphere, conference centers, and long distance learning center.
- Area 13 is 441 acres, 40 of which can be easily developed. The soil is not very good in the other area. Therefore, this area will probably be an industrial use, support for automobile cargo operations, or flexible space, like office/warehouse space.
- Area 14 and the little triangle area on the southern end of the base is the reserve area. It's mostly racquetball courts.
- The best and most convenient use for the marina, which is 23 acres, is to continue the marina.

Mr. Sprott said that the use for the senior officers' area by Hobson Avenue and the creek and the old Naval Hospital would be retirement market related. Mr. Sprott commented that the retirement market is very, very strong. It would be marketed as 90 individual high density lots. Some of the existing buildings would be for independent living facilities for retirement.

Mr. Sprott noted that the admiral's house and five other houses will be part of a 30-room development that would serve the retirement area and the conference center. There would be an assisted living complex, a conference center or restaurant. The consultants recommended a golf academy that would benefit the conference center, the retirement people.

Mr. Sprott noted that a nice entranceway, perhaps through the North Charleston Circle area off of 526, would be added along with buffering of the retirement/golf area from the shipyard.

The RDA must now negotiate with the Navy and obtain zoning from the City of North Charleston.

The feasibility study was only done on one district and will have to be repeated for the other 13

districts.

Mr. Sprott is in possession of the appraisals and hopes to make an application for conveyance of the property in about two months. Once the application has been received by the Navy, it will take a year for the Navy to respond. It will take another year before the RDA actually receives the parcels (because of the timetable of the environmental work), but that will not stop their development.

A question was asked as to whether renovations are being done inside some of the buildings. Mr. Sprott advised that, if the building is leased, the lessees have to ask permission. The business owners focus on making the buildings functional, not aesthetic.

The Record of Decision on the Environmental Impact Statement has not changed from the Suzuki plan to the Fluors-Daniel plan. They're not going to change parks into industrial areas.

On the Chicora tank farm, Mr. Sprott plans to work with the City of North Charleston to convey that property to the City, if the City desires it. If they do not, if the RDA has no plan for it.

**9. Comments and Questions**

Mr. Fontenot proposed a field visit for Thursday, April 16th at 3:00. There was no response for the site visit. Mr. Fontenot advised that he will provide another opportunity at the meeting.

At the June meeting, Mr. Fontenot will present a new program called A Technical Assistance for Public Participation.@ That program provides for independent assistance in interpreting the scientific engineering issues regarding environmental hazards and restoration. Basically, it's a \$25,000 a year grant for assistance in interpreting technical information.

**The next meeting will be Tuesday, June 9, 1998 at 6:00 p.m. at the Live Oak Community Center, 2012 Success St., N. Charleston, SC.**

**10. Adjournment**

Minutes prepared by: Keith Johns, EnSafe, Inc.

Minutes approved by:

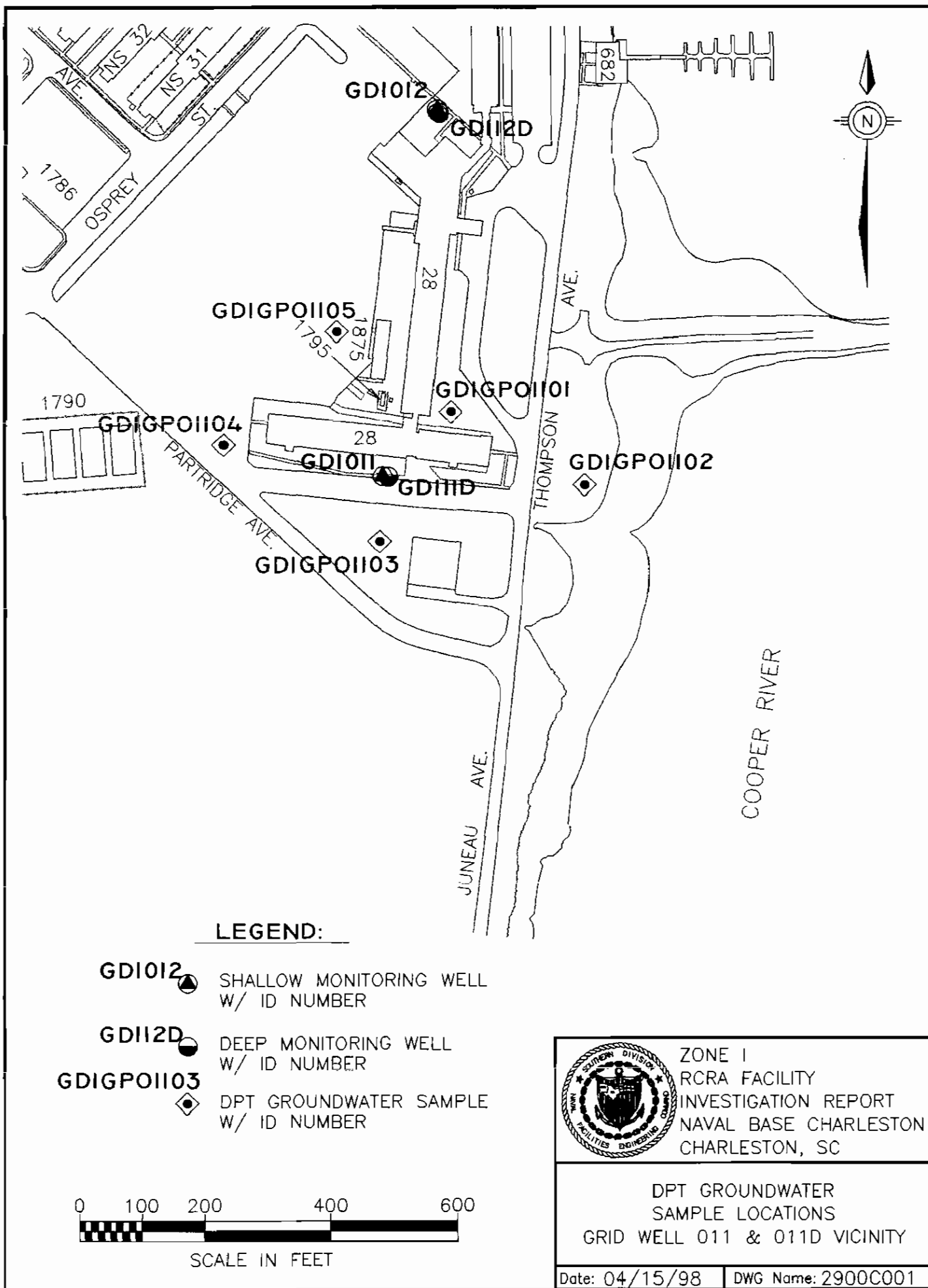
\_\_\_\_\_  
Daryle Fontenot  
Navy Co-Chair

\_\_\_\_\_  
Wannetta Mallette-Pratt  
Community Co-Chair

Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994	1995	1996	1997	1998	1999
						JFMAMJJJASON	FMAMJJJASONNDJ	FMAMJJJASONNDJ	FMAMJJJASONNDJ	FMAMJJJASONNDJ	SONDJFM
RFA and Comprehensive Work Plan						Focus Field Investigation and Technical Memo.					
28JAN94	31JUL95	28JAN94	31JUL95	541	100						
31JUL95	27NOV95	31JUL95	27NOV95	117	100						
28NOV95	8JAN96	27NOV95	8JAN96	40	100						
9JAN96	14FEB96	8JAN96	10OCT97	20	100						
28JAN94	18FEB94	28JAN94	18FEB94	22	100						
21SEP94	8JAN95	21SEP94	8JAN95	106	100						
11JAN95	9FEB95	11JAN95	9FEB95	30	100						
18FEB94	18MAY94	18FEB94	18MAY94	90	100						
30JUL94	28AUG94	30JUL94	28AUG94	30	100						
1DEC94	10MAY95	1DEC94	10MAY95	30	100						
10MAY95	21SEP95	10MAY95	21SEP95	132	100						
21SEP95	1DEC95	21SEP95	1DEC95	70	100						
1DEC95	11DEC95	1DEC95	11DEC95	10	100						
2MAR94	16MAR94	2MAR94	16MAR94	15	100						
16MAR94	13JUN94	16MAR94	13JUN94	89	100						
21SEP94	8JAN95	21SEP94	8JAN95	106	100						
11JAN95	9FEB95	11JAN95	9FEB95	30	100						
24MAY94	8JUN94	24MAY94	8JUN94	15	100						
8JUN94	7SEP94	8JUN94	7SEP94	90	100						
21SEP94	8JAN95	21SEP94	8JAN95	106	100						
11JAN95	9FEB95	11JAN95	9FEB95	30	100						
22JUN94	6JUL94	22JUN94	6JUL94	14	100						

Plot Date 15JUL98  
Data Date 15JUL98  
Project Start 1JAN94  
Project Finish 14FEB99

NAVY CLEAN MSG 467-89-C-0318			
Date	Revision	Checked	Approved
15 Jul 98	Rev 1	CMH	MMH
15 Aug 98	Rev 2	CMH	MMH
15 Sep 98	Rev 3	CMH	MMH
15 Oct 98	Rev 4	CMH	MMH



DATALCP3  
04/10/98

CHARLESTON - ZONE I  
CHARLESTON ZONE I  
Grid Well 11 & 11D Volatile Data

Page: 2  
Time: 11:11

SUB46-V0A		SAMPLE ID ----->	GDI-G-W011-01	GDI-G-W11D-01				
		ORIGINAL ID ----->	GDIGW01101	GDIGW11D01				
		LAB SAMPLE ID ---->	720427	728940				
		ID FROM REPORT -->	GDIGW01101	GDIGW11D01				
		SAMPLE DATE ----->	05/19/95	06/07/95				
		DATE ANALYZED ---->	06/03/95	06/12/95				
		MATRIX ----->	Water	Water				
		UNITS ----->	UG/L	UG/L				
CAS #	Parameter	0007V	VAL	0010V	VAL			
76-13-1	Trichlorotrifluoroethane (Freon 113)	25.	UJ	25.	U			
74-88-4	Methyl iodide	5.	UJ	5.	U			
107-05-1	3-Chloropropene	15.	UJ	15.	U			
75-05-8	Acetonitrile	60.	UJ	60.	U			
107-13-1	Acrylonitrile	95.	UJ	95.	U			
107-12-0	Propionitrile	220.	UJ	220.	UR			
126-98-7	Methacrylonitrile	20.	UJ	20.	U			
4170-30-3	Crotonaldehyde	300.	UR	300.	UR			
78-83-1	Isobutyl alcohol	2800.	UR	2800.	UR			
74-95-3	Methylene bromide	10.	UJ	10.	U			
80-62-6	Methyl methacrylate	20.	UJ	20.	UR			
123-91-1	1,4-Dioxane	3700.	UR	3700.	UR			
110-75-8	2-Chloroethyl vinyl ether	10.	UR	10.	UR			
97-63-2	Ethyl methacrylate	10.	UJ	10.	UJ			
106-93-4	1, 2-Dibromoethane	10.	UJ	10.	U			
630-20-6	1,1,1,2-Tetrachloroethane	10.	UJ	10.	U			
1476-11-5	Cis-1,4-Dichloro-2-Butene	5.	UJ	5.	UR			
96-18-4	1,2,3-Trichloropropane	10.	UJ	10.	U			
110-57-6	trans-1,4-Dichloro-2-butene	10.	UJ	10.	UR			
96-12-8	1,2-Dibromo-3-Chloropropane	10.	UJ	10.	UJ			

\*\*\* Validation Complete \*\*\*



DATACP3  
04/10/98

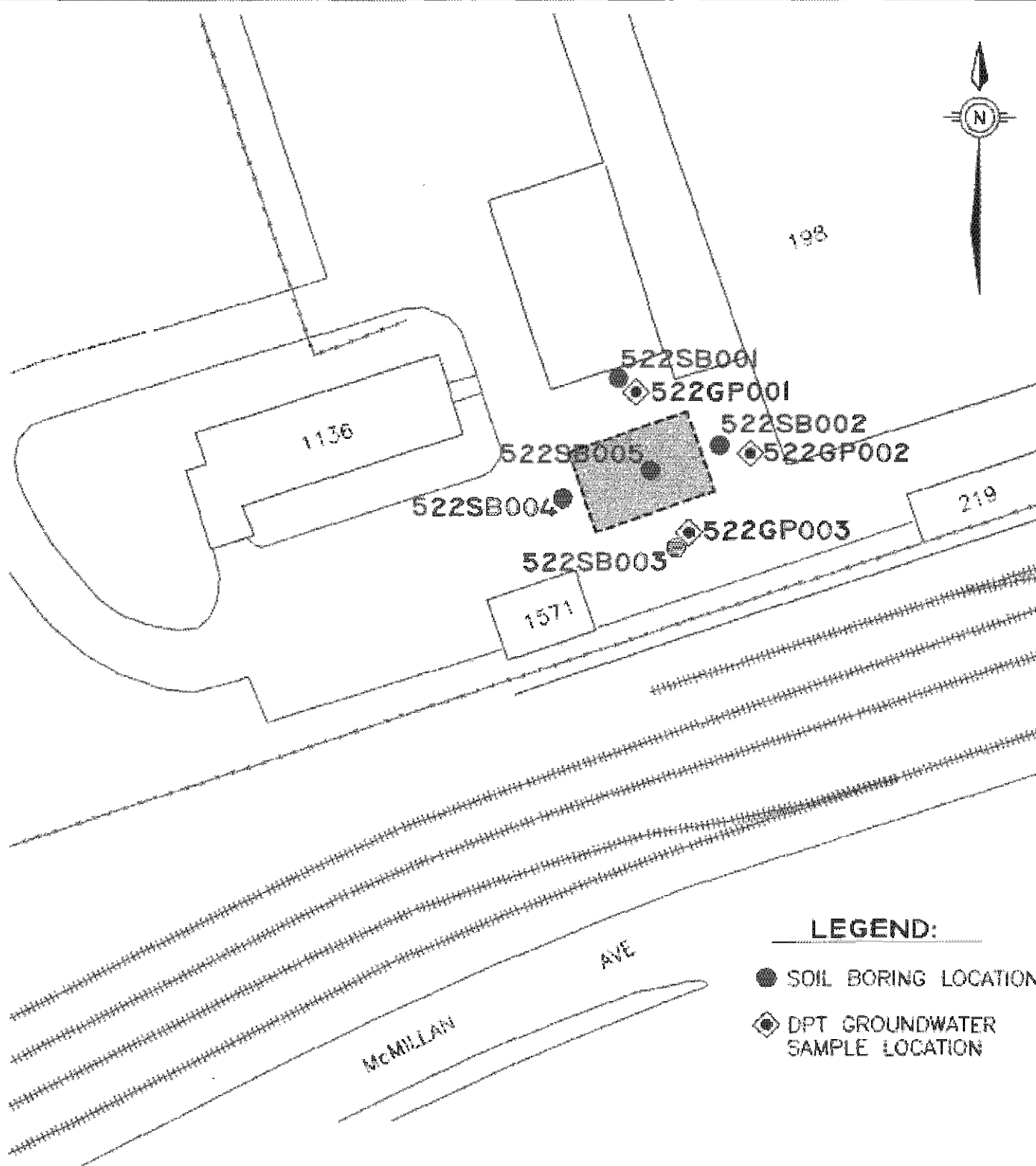
CHARLESTON - ZONE I  
CHARLESTON ZONE I - QUARTERLY SAMPLING  
Grid Well 11 & 11D Volatile Data

Page: 1  
Time: 11:06

SUB46-V0A		SAMPLE ID ----->		GD1-G-W011-02	GD1-G-W011-03	GD1-G-W011-04	GD1-G-W110-02	GD1-G-W110-03	GD1-G-W110-04				
		ORIGINAL ID ----->		GD1GW01102	GD1GW01103	GD1GW01104	GD1GW11002	GD1GW11003	GD1GW11004				
		LAB SAMPLE ID ----->		24325.05	25741.01	26796.05	24336.03	25750.02	26798.01				
		ID FROM REPORT ----->		GD1GW01102	GD1GW01103	GD1GW01104	GD1GW11002	GD1GW11003	GD1GW11004				
		SAMPLE DATE ----->		12/14/95	05/23/96	08/29/96	12/15/95	05/24/96	08/30/96				
		DATE ANALYZED ----->		12/20/95	06/03/96	09/04/96	12/22/95	05/31/96	09/05/96				
		MATRIX ----->		Water	Water	Water	Water	Water	Water				
		UNITS ----->		UG/L	UG/L	UG/L	UG/L	UG/L	UG/L				
CAS #	Parameter	24310	VAL	25724	VAL	26768	VAL	24310	VAL	25724	VAL	26768	VAL
74-87-3	Chloromethane	10.	U	10.	U	10.	U	10.	U	10.	U	10.	U
74-83-9	Bromomethane	10.	UJ	10.	U	10.	UJ	10.	UJ	10.	U	10.	UJ
75-01-4	Vinyl chloride	10.	U	10.	U	10.	U	10.	U	10.	U	10.	U
75-00-3	Chloroethane	10.	UJ	10.	U	10.	UJ	10.	U	10.	U	10.	UJ
75-09-2	Methylene chloride	9.	U	6.	U	22.	U	17.	U	5.	U	5.	U
67-64-1	Acetone	24.	UJ	24.	U	10.	U	21.	U	10.	UJ	10.	U
75-15-0	Carbon disulfide	5.	U	2.	J	5.	U	5.	U	5.	U	5.	U
75-35-4	1,1-Dichloroethene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
75-34-3	1,1-Dichloroethane	1.	J	5.	U	5.	U	5.	U	5.	U	5.	U
540-59-0	1,2-Dichloroethene (total)	7.		5.		4.	J	5.	U	5.	U	5.	U
67-66-3	Chloroform	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
107-06-2	1,2-Dichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
78-93-3	2-Butanone (MEK)	10.	UJ	10.	U	10.	U	10.	U	10.	U	10.	U
71-55-6	1,1,1-Trichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
56-23-5	Carbon tetrachloride	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
108-05-4	Vinyl acetate	10.	UJ	10.	UJ	10.	UJ	10.	U	10.	UJ	10.	UJ
75-27-4	Bromodichloromethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
79-34-5	1,1,2,2-Tetrachloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
78-87-5	1,2-Dichloropropane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
10061-02-6	trans-1,3-Dichloropropene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
79-01-6	Trichloroethene	4.	J	10.		12.		5.	U	5.	U	5.	U
124-48-1	Dibromochloromethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
79-00-5	1,1,2-Trichloroethane	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
71-43-2	Benzene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
10061-01-5	cis-1,3-Dichloropropene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
110-75-8	2-Chloroethyl vinyl ether	10.	UJ	10.	UR	10.	U	10.	UJ	10.	UR	10.	U
75-25-2	Bromoform	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
591-78-6	2-Hexanone	10.	UJ	10.	U	10.	U	10.	U	10.	U	10.	U
108-10-1	4-Methyl-2-Pentanone (MIBK)	10.	UJ	10.	U	10.	U	10.	U	10.	U	10.	U
127-18-4	Tetrachloroethene	1.	J	5.	U	4.	J	5.	U	5.	U	5.	U
108-88-3	Toluene	2.	J	5.	U	5.	U	5.	U	5.	U	5.	U
108-90-7	Chlorobenzene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
100-41-4	Ethylbenzene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
100-42-5	Styrene	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U
1330-20-7	Xylene (Total)	5.	U	5.	U	5.	U	5.	U	5.	U	5.	U

\*\*\* Validation Complete \*\*\*

Page: 1  
Time: 11:05

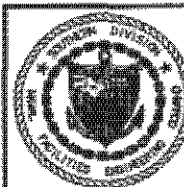


**LEGEND:**

- SOIL BORING LOCATION
- ◆ DPT GROUNDWATER SAMPLE LOCATION



SCALE IN FEET



ZONE C  
RCRA FACILITY  
INVESTIGATION REPORT  
NAVAL BASE CHARLESTON  
CHARLESTON, SC

AOC #522  
FORMER GREASE & WASH BUILDING  
SAMPLING LOCATIONS

Date: 04/13/98

DWG Name: 2903C001



**DEPARTMENT OF THE NAVY**

SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
P.O. BOX 190010  
2155 EAGLE DRIVE  
NORTH CHARLESTON, S.C. 29419-9010

5090/11  
Code 1877  
6 November 1998

Mr. John Litton, P.E.  
Director, Division of Hazardous and Infectious Waste Management  
Bureau of Land and Waste Management  
South Carolina Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201

Subj: SUBMITTAL OF THE QUARTERLY RCRA FACILITY INVESTIGATION  
PROGRESS REPORT

Dear Mr. Litton,

The purpose of this letter is to submit the Quarterly RCRA Facility Investigation (RFI) Progress Report for Naval Base Charleston. This report is submitted in order to comply with condition II.C.5 of the RCRA Part B permit issued to the Naval Base Complex by the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control.

Enclosure (1) is the Quarterly Report which contains the activity for the months of July through September, 1998. If you have any questions, please contact Billy Drawdy or myself at (803) 743-9985 (Ext. 29) and (803) 820-5525 respectively.

Sincerely,

MATTHEW A. HUNT, P.E.  
Environmental Engineer  
Installation Restoration III

Enclosure: (1) Quarterly RFI Progress Report – 01 July through September 1998  
Copy to (w/encl):  
SCDHEC (Paul Bergstrand, Johnny Tapia)  
USEPA (1) (Dann Spariosu)  
CSO Naval Base Charleston (Billy Drawdy)

**NAVBASE CHARLESTON  
RFI STATUS REPORT  
PERIOD: SUMMARY OF  
01 July 1998 To 30 September 1998**

**I. INTRODUCTION**

The following quarterly status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

**II. PORTION OF THE RFI COMPLETED**

**General**

The project team held a conference call on 27 July 1998 to discuss the ongoing monitored natural attenuation evaluation. The team agreed on a scope of work for the second phase of field sampling which included the installation of additional wells and another round of sampling. The field work was completed the week of 12 October 1998.

On 17 August 1998, SCDHEC issued the new Part B permit for NAVBASE.

Proposed revisions to the *Final Comprehensive CMS Work Plan* were submitted to the regulatory agencies on 18 August 1998 for review and comment.

The Navy and EnSafe entered in a contract modification on 17 September 1997 to perform pilot treatability studies at AOC 607 (Zone F) and SWMU 166 (Zone K).

A memo was issued by SCDHEC citing examples of monitoring wells that were observed to be in disrepair due primarily damage caused either by tenants or corrosion from prolonged exposure to the weather. An inventory of all the RFI wells was subsequently completed and an extensive effort was undertaken to make repairs. The Project Team agreed in October that the inventory should be completed on quarterly basis so that wells are properly maintained to preserve integrity.

**Task 2901 - Zone A**

Additional written comments pertaining to the *Final Zone A RFI Report* were received from SCDHEC on 15 July 1998. Approval of the document is pending acceptance of the errata pages submitted to the regulatory agencies on 18 August 1998.

Two monitoring wells damaged by a tenant of the former DRMO area were repaired. The damage to the protective pad surrounding the well was extensive enough to the pad that it had to be completely replaced.

Comments pertaining to the *Draft Zone A CMS Work Plan* were received from SCDHEC on 15 July 1998. A conference call between the Navy, SCDHEC, and EnSafe was held on 19 August 1998 to discuss the comments and agreed upon required revisions to the plan. The errata pages were submitted to the regulatory agencies on 8 September 1998 for review and comment/approval. Even though the plan has not been approved, the Project Team agreed that the scope of field work was sufficiently acceptable that work could begin. The CMS field effort kicked off the week of 13 October 1998.

**Task 2902 - Zone B**

All tasks for Zone B are 100 percent complete, and no further action is required.

**Task 2903 - Zone C**

The *Draft Zone C CMS Work Plan* was submitted to the regulatory agencies on 1 July 1998 for review and comment. Comments were received from SCDHEC via e-mail on 23 October 1998. The comments are currently being evaluated with the intent to prepare a response prior to Thanksgiving.

**Task 2904 - Zone D**

All tasks for Zone D are 100 percent complete, and no further action is required.

**Task 2905 - Zone E**

Wipe samples were collected from surfaces within 3 electrical vaults at SWMU 25. The sampling was performed to support ongoing interim measures activities which had come to a standstill due to health and safety concerns expressed by the Naval Detachment and SCE&G. The sampling was performed on 8 July 1998.

**Task 2906 - Zone F**

Errata pages for the *Draft AOC 607/SWMU 166 CMS Work Plan* were submitted to the regulatory agencies on 21 July 1998. The pages were approved and the document accepted as final on 8 October 1998. Field work began at AOC 607 the week of 5 October

Air samples were collected for analysis from 2 sanitary sewer manholes along a section of sewer line where contaminated groundwater is known to be infiltrating the system as a result of releases from the former dry cleaning shop, AOC 607. The primary intent of collecting the samples was to evaluate potential exposure risk for maintenance workers. The sampling was performed on 30 July 1998. Analytical data indicated the presence of chlorinated compounds in air.

The pilot treatability study at AOC 607 was kicked off with a site visit by the project engineers on 30 September 1998.

**Task 2907 - Zone G**

Groundwater sampling was performed at SWMU 24, AOC 613, and AOC 709 as part of the ongoing monitoring effort for these sites which are part of the fuel distribution system that was retained under the RFI. This represents the second sampling event for the wells at SWMU 24 and the 5<sup>th</sup> sampling event for the wells at both AOC 613 and AOC 709.

**Task 2908 - Zone H**

Shallow well installations for the Zone H CMS were completed. Sampling of the new wells began in late July and was completed until mid-August. Additional soil samples were collected at SWMU 14 after sieve analyses revealed that lead shot density was greater in samples at the extremities of the original sampling pattern. Prior to collecting more samples a representative of the Federal Cartridge Company was contacted to determine the maximum expected trajectory of shot from skeet/trap loads. The maximum trajectory under ideal conditions is 770 feet. Based on this information, several additional samples were collected at the extremity of the shot pattern.

EnSafe summarized all the data for AOC 667/SWMU 138 in the form of a revision to the *Final Zone H RFI Report*. The revision was submitted on 8 July 1998 to the regulatory agencies for review and approval.

**Task 2909 - Zone I**

Significant revisions to the *Draft Zone I RFI Report* continued. As previously reported, additional sampling was performed at SWMU 177, AOC 672, AOC 673, AOC 685, AOC 687, AOC 688, and AOC 690 in an effort to fill data gaps. The data was presented at the June project team and the team agreed no further sampling was required pending review of the revised RFI report with the exception of SWMU 177 and AOC 680. More soil samples were collected at SWMU 177 and an additional well was installed at both AOC 680 and nearby AOC 679. A decision by the Project Team on whether or not to transfer AOC 680 from the RFI to the UST program is pending review of the latest groundwater data from the newly installed well.

**Task 2910 - Zone J**

Representatives from SOUTHDIV, the Naval Research Lab, and EnSafe collaboratively prepared a technical memo discussing the results of various sampling efforts performed to date. The memo, which also contained recommendations for future action, was sent to members of the project team on 15 July 1998 for their review and comment. Subsequent to delivery of the memo, members of the project team met with Natural Resource Trustee

representatives at Ft. Johnson to discuss the ongoing data collection efforts by the Naval Research Lab and the future course of action for the RFI.

**Task 2911 - Zone K**

Analytical data was received for the groundwater samples collected from the 2 additional "upgradient" wells recently installed at SWMU 166. The data indicates some dissolved phase chlorinated solvent contamination is present upgradient of the source area. The wells were sampled a second time in conjunction with the MNA sampling event and the results were comparable to the initial round. Based on the data, the team agreed that the assumption could be made that field work is complete and preparation of the RFI report should be completed.

The second round of sampling for monitored natural attenuation parameters was completed at SWMU 166.

The pilot treatability study at SWMU 166 was kicked off with a site visit by the project engineers on 30 September 1998.

**Task 2912 - Zone L**

Analytical data was received for the second quarter of groundwater sampling for the permanent wells installed for the Zone L RFI.

**III. SUMMARIES OF FINDINGS**

The latest findings to date are generally summarized and discussed in detail at the monthly project team meetings where handouts including data have been distributed in lieu of presenting the data quarterly in this report. Project team meeting minutes with the meeting handouts are maintained at the project team office located on Naval Base Charleston.

**IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD**

There were no known deviations from the approved RFI Work Plans for this reporting period.

**V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT**

As of June 1997 the Restoration Advisory Board (RAB) agreed to meet on a bi-monthly basis. Minutes from the June and August 1998 meetings are enclosed as Attachment A.



## **VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS**

There were no problems or potential problems identified during this reporting period.

## **VII. KEY PROJECT PERSONNEL**

Daryle Fontenot, the BEC for NAVBASE Charleston, resigned from his position at SOUTHDIV. A successor has yet to be named.

## **VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD**

### **Document Preparation and Data Evaluation:**

- Draft SWMU 166 RFI Report
- Draft Zone L RFI Report
- Draft-Final Zone I RFI Report
- Draft SWMU 166/AOC 607 Treatability Study Work Plan
- Draft-Final Zone C CMS Work Plan
- Zone H CMS data evaluation
- MNA data evaluation

### **Field Activities:**

- Zone H CMS
- Zone A CMS
- SWMU 166 CMS
- AOC 607 CMS

## **IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA**

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe office in Charleston and is available for review.

## **X. CORRECTIVE ACTION MANAGEMENT PLAN (CAMP)**

As agreed upon by the project team, the CAMP will be updated and submitted quarterly as part of the *Quarterly RFI Status Report*. The baseline schedule presented in the CAMP was revised in October 1997 and submitted as Appendix F-15 of the RCRA Part B permit renewal submitted to SCDHEC. The current submittal (Attachment B) dated October 5, 1998 is labeled Revision 04 and it reflects updates based on progress made during the last quarter. The "baseline" schedule is represented by the dates identified as scheduled start and finish dates. These dates did not change from the previous version of the CAMP since they are intended to be used as a means to measure progress (or lack thereof) since October 10, 1997 when the format of the CAMP was changed. Regulatory dates are determined by the "actual" start dates and specified durations to complete the tasks. The regulatory dates may or may not correspond to the scheduled dates depending on whether tasks performed since October 10, 1997 were completed on time.

Changes made to the CAMP are as follows:

Comprehensive - Added a milestone to indicate issuance of the Part B Permit renewal on 17 August 1998.

Zone A - The date of 18 August 1998 was inserted as the start date for distribution of the final RFI report. The completion date for regulatory review of the CMS work plan was added as were the start dates for comment resolution, final document distribution, and the start of field work.

Zone F - The CMS portion of the CAMP was updated to indicate approval of the AOC 607 CMS and the start of CMS field work.

Zone I - The "actual finish" date for the "additional field investigation" task" was modified to reflect the completion of work that was recently finished at AOC 680.

Zone K - The CMS portion of the CAMP was updated to reflect dates associated with approval of the CMS work plan for SWMU 166, distribution of the document, and the start of field work at that site.

NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING  
Minutes of June 9, 1998  
Live Oak Community Center  
2012 Success St., North Charleston, SC

RAB Members Attending

Ms. Ann Clark	Ms. Wanetta Mallette-Pratt
Mr. Daryle Fontenot	Mr. Arthur Pinckney
Mr. Tom Fressilli	Mr. J. Michael Reubesh (for Bobby Dearhart)
Mr. Gussie Greene	Mr. Henry Shepherd
Mr. Donald Harbert	Mr. Dann Spariosu
Mr. Ralph Laney	Mr. Bob Veronee

Guests Attending

V.P. Simmons	
Ms. Evelyn L. McCullough	
Mr. Wayne Fanning	SCDHEC
Ms. Melissa King	SCDHEC
Mr. Johnny Tapia	SCDHEC
Mr. Paul M. Bergstrand	SCDHEC
Mr. Austin Hilligas	RDA
Mr. Tony Hunt	NAVFAC, Southern Division
Mr. Reece Batten	NAVFAC, Southern Division
Mr. Gabriel L. Magwood	NAVFAC, Southern Division
Mr. William A. Drawdy	NAVFAC, Southern Division
Ms. Susan Dunn	Grassroots/RDA
Mr. Rick Albers	Environmental Detachment
Ms. Diane M. King	
Ms. June Mirecki	College of Charleston
Ms. Earttey Washington	
Ms. Olive K. Perry	
Mr. R.E. Tennessy	
Mrs. R.E. Tennessy	
Mr. Ken Ayoub	Chicora/Cherokee
Ms. Lorraine Ayoub	Chicora/Cherokee
Mr. Skip Perry	
Mr. Gus Irving Washington	
Mr. Jack Stender	Carolina Marine Handling
Mr. Larry Bowers	EnSafe
Mr. Todd Haverkost	EnSafe
Mr. Don Cooke	EnSafe

### Introduction of RAB members and Guests

Mr. Daryle Fontenot, Navy Co-Chair, brought the meeting to order at 6:00 p.m. He began by introducing himself. Member and audience introductions were made.

### Administrative Remarks and Discussion of the Last Meeting Minutes

Mr. Fontenot asked for comments on the minutes from the April meeting. Mr. Tapia commented that on page 3, the last paragraph of the presentation on public participation, the sentence reads that "NAVFAC" will make decisions on all comments. That's a misunderstanding; it should read "SCDHEC."

Mr. Fontenot announced that Mr. Lou Mintz, Community Co-Chair, will not be able to attend because he's an election poll manager for an election in Mount Pleasant.

### Subcommittee Reports

#### *Community Relations Subcommittee*

Mr. Fontenot stated that he, Lou Mintz, Arthur Pinckney, Wanetta Mallette-Pratt and Fouche'na Sheppard are members of this committee. The latest Fact Sheet, #12, will be mailed out by the end of the week, but a few copies are available tonight.

This committee has initiated work on a fact sheet dealing with the radiological cleanup of the base. The Detachment and the Naval Civil Command are providing support for the fact sheet.

Mr. Fontenot presented information on attendance of meetings by RAB members, Community members, non-Community members and Contract workers. In January, 55 people were in attendance, and in the last meeting, about 25 were in attendance. The highest attendance by RAB members has been 18 people. Several times there were only two community members in attendance. Mr. Fontenot urged the RAB members to make an effort to get the word out about the meetings and the information presented.

Ms. Mallette-Pratt inquired whether there's a correlation between attendance and the possibility that RAB members are not getting the word out. Mr. Fontenot again urged RAB members to get the word out. Ms. Greene asked if the media are being used to announce the meetings. Mr. Fontenot noted that a press release is sent out to every TV station and newspaper. They are notified and choose not to pursue the story.

Mr. Reubesh asked if there was a difference in attendance, positive or negative, since changing to meetings every other month. Mr. Fontenot responded the location has helped increase attendance, but not sure if going to every other month has helped or hurt the attendance. Meeting every other month ensures that RAB has enough new information to discuss.

Ms. Greene commented that meetings are held at a bad time of day and asked if the budget would allow for coffee or soda. Mr. Fontenot answered that he will check into the budget for refreshments. Another question was asked that, when the meetings were changed from one hour to three hours, if attendance started falling off. Mr. Fontenot replied that most meetings are still around one hour.

### Environmental Cleanup Progress Report

Mr. Fontenot provided an update on the asbestos program. The survey is complete and the Navy is preparing a cost estimate for the abatement of friable, accessible asbestos in housing. The same is true for the lead-based paint program - they've completed a survey and are getting cost estimates.

On the underground storage tank program, 126 tanks have been removed, and we're now moving into site assessment. There are only about 30 removals left. Large posterboard maps were provided that showed each underground storage tank and any action taken there to date.

At the Chicora tank farm, one tank was cleaned in January. The remaining five are to be cleaned and demolished. Around June 22, 1998, the Navy planned to move some dirt and demolish the first test tank closest to the school, which is the tank that's currently clean. If this is successful, the cleaning and demolition of the tanks will continue and the pipeline will be properly abandoned.

A question was asked whether any of the materials from demolition at the Chicora Tank Farm is of any use. Mr. Fontenot noted that the majority of debris will be disposed onsite. The tanks are made of concrete reinforced steel, so they'll be broken apart onsite and, therefore, are of no use. Piping and associated metal structures have to be recycled or sold for scrap.

### RCRA Facility Investigation (RFI) Update

As reported by Mr. Fontenot, there is no new information on the RCRA corrective action program. He directed questions on the program to Mr. Tony Hunt after the meeting.

### Reuse Presentation on Chicora Tank Farm

Dr. June Mirecki (College of Charleston) presented a poster prepared by two graduate students, Paul Campbell and Eldon DeLong, in the master's program of environmental studies at the College of Charleston. Their idea is to convert that land into an educational/recreational facility. It would include open space and park land in support of the school. The development of this idea is dependent upon future funding. Some funding could come from community development grants or the federal Brownfield program. One of the problems in park development, said Dr. Mirecki, is that you have to make sure that operation and maintenance money is available; otherwise, the likelihood of parks becoming vacant fields is fairly great.

Ms. Greene remarked that this particular use is something the community has been pushing for a long time. Mr. Pinckney inquired if this plan was presented to the Town of North Charleston. Dr. Mirecki replied, not yet. A question was also asked if this poster had been presented to the Harmony Project. Dr. Mirecki responded that she hasn't explicitly shown this to Mel Goodwin, although he was aware of it. Dr. Mirecki also said that she and Tony Hunt would be happy to attend the community meeting when Dr. Goodwin presents his results of the land use survey.

### Presentation on Technical Assistance for Public Participation (TAPP) Program

Mr. Fontenot described this program sponsored by the Department of Defense. This program provides independent assistance for interpretation of scientific information to RABs.

The goal of the program is to enhance the public's ability to participate in the decision-making

process, providing the community a source of credible expertise, if it's needed, and demonstrating the Department of Defense's commitment to the community. TAPP assistance is for RABs only, and is not available to community action groups or political action groups. This program was announced in February.

The program has a lifetime cap of \$100,000, with no more than \$25,000 a year. If the RAB chooses to implement the TAPP, they will determine what technical assistance is needed, outside of what the Navy, SCDHEC and EPA can provide. The need must be compatible with program guidelines.

The Navy co-chair person assists you in preparing the application, then forwards that application to the contract people to provide the service. Once a purchase order is processed, the Navy co-chair becomes the technical go-between with the RAB and the contract people. Then there's a close-out report on whatever services are provided, and eventually it ends up with a report to Congress on how well the TAPP program has been used and which RABs have had a benefit.

Types of eligible projects include:

- interpretation of technical documents
- review of proposed restoration technologies
- participate in relative risk evaluations
- understanding health and environmental site cleanup
- installation restoration site investigating
- reviewing engineering decision documents
- reviewing risk assessment documents
- reviewing human health assessments
- understanding the function and/or the technology for cleanup
- understanding alternate remedial technology
- understanding corrective measure studies
- interpretation of potential health implications
- understanding health implications of exposure to site contaminants
- understanding the residuals left after cleanup
- training in risk assessment
- training in evaluating sampling plans
- training in legal issues

Projects not covered by the TAPP include:

- political activity
- lobbying
- litigation
- additional sampling
- reopening final decisions
- epidemiological or health studies
- community outreach programs

To obtain this grant, first, a need has to be determined. The RAB must demonstrate that the federal or local agencies -- SCDHEC, EPA, the Navy or its contractors -- do not have the technical expertise to sufficiently explain or provide a certain type of service. In addition, the grant may be provided if the RAB can demonstrate that its use is likely to contribute to the efficiency, effectiveness and timeliness of the environmental activity.

Other programs are available, along with the TAPP program. Local, state and federal staff that are part of the project team are available now for technical assistance. EPA also has some grant

programs for information interpretation and assistance.

Mr. Spariosu noted that the EPA has a similar program called Technical Assistance Grant (TAG). TAGs are usually awarded to a community group that is not a RAB. TAPP is for RABs, and TAG is for independent groups.

#### Reuse Update

Mr. Hill provided the latest information in a summary update. There are 4,080 full-time or full-time equivalent jobs on the base. That doesn't account for the other people on the base, like 1,000 border patrol trainees per year; 400 academic high school students, and 300 national civil community volunteers. Civilian jobs now outnumber federal jobs. A graph was presented showing where the tenants projected they would be in three to five years, and RDA figures show approximately 9,256 civilian and federal jobs will be on the base.

Since the last RAB meeting, there have been two Redevelopment Authority (RDA) board meetings. Mr. Hill has copies of those minutes. At the April 28th meeting, the RDA approved a lease for a motion picture group out of the College of Charleston. On the 19th, the RDA approved a large lease for NEI, and another lease with the College of Charleston for a warehouse to store records. The next RDA meeting is scheduled for Tuesday, June 30th at 12:30 p.m. in the RDA offices on the base.

The environmental detachment office and the Navy caretaker's office will go away after their work is complete. September 30, 1999 is when the environmental detachment is scheduled to be disbanded. Private contractors will be doing any remaining cleanup. Mr. Hill said that the environmental detachment has nice facilities and equipment, and the RDA would like access to that to generate more jobs in the private sector. Originally, there were 17,000 military personnel and 5,000 civilian workers on the base.

RDA is closing in on replacing the civilian jobs. The RDA is concerned with making sure the base is cleaned up for the redevelopment.

#### Shipyard Creek Update

Mr. Wayne Fanning from SCDHEC advised that on April 30, 1998, the Department issued an emergency order banning the consumption of shrimp, crabs and oysters from Shipyard Creek as a result of high levels of chromium. This advisory does not apply to fish.

SCDHEC has posted 20 signs around Shipyard Creek at different locations, both facing the water and at different access points on land. If anyone knows of any access points that are not posted, please advise SCDHEC, and they'll put a sign there.

There's a certain percentage of people that are allergic to the chromium through the organisms, mud or the water. In addition to closing the creek, the EPA and SCDHEC have begun an emergency Superfund removal in order to deal with the runoff. The advisory will last until SCDHEC takes corrective action and there's data to support that it's no longer unsafe, which could be months. The sampling that has been done in previous years was only of fish. This year's sampling was of the shrimp and crabs, which were not previously sampled. The Macalloy Corporation may continue to

participate voluntarily in conducting this action themselves.

Comments and Questions

No other comments were made. The next RAB meeting is August 11, 1998 at 6:00 p.m. at the Live Oak Community Center, 2012 Success Street, North Charleston, SC.

Adjournment

Minutes approved by:

\_\_\_\_\_  
Daryle Fontenot,  
Navy Co-Chair

\_\_\_\_\_  
Louis Mintz,  
Community Co-Chair



NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING  
Minutes of August 11, 1998  
Live Oak Community Center  
2012 Success St., North Charleston, SC

RAB Members Attending

Mr. Oliver Addison  
Mr. Steve Best  
Mr. Bobby Dearhart  
Mr. Wilburn Gilliard  
Ms. Gussie Green  
Mr. Tony Hunt  
Ms. Jeri Johnson  
Mr. Ralph Laney  
Ms. Wannetta Mallette-Pratt  
Mr. Lou Mintz  
Mr. W.A. Drawdy (for Henry Shepherd)  
Ms. Fouche'na Sheppard  
Mr. Dann Spariosu  
Mr. Bob Veronee

Guests Attending

Mr. Daryle Fontenot	
Ms. Judy King	
Mr. Kevin Tunstall	
Mr. Benjamin Washington	
Eartley Washington	
V.P. Simmons	Union Heights Neighborhood Association
Mr. Johnny Tapia	SCDHEC
Mr. Paul Bergstrand	SCDHEC
Ms. Pam Bergstrand	
Mr. Rick Albers	DET
Mr. Jim Beltz	NAVFAC, Southern Division
Mr. Gabriel L. Magwood	NAVFAC, Southern Division
Mr. Danny Hughes	Environmental Detachment, Charleston
Mr. J. Michael Reubish	Environmental Detachment, Charleston
Mr. Larry Bowers	EnSafe
Mr. Keith Johns	EnSafe
Mr. Joseph M. Land, Sr.	Galileo Quality Institute

### Introduction of RAB Members and Guests

Mr. Lou Mintz, Community Co-Chair, brought the meeting to order at 6:00 p.m. He began by introducing himself. Member and audience introductions were made.

### Administrative Remarks

Mr. Mintz asked the gathered audience if they had any particular questions or concerns that should be raised at the beginning of the meeting. He noted that this was a new aspect in these meetings, but he hoped it would bring issues out at the beginning of the meeting that could be addressed during the scheduled presentations, or with special attention.

Mr. Hunt announced that Mr. Daryle Fontenot has left the Navy and has joined the South Carolina Department of Natural Resources.

### Subcommittee Reports

#### *Community Relations Subcommittee*

Mr. Mintz reported that the community relations subcommittee met on August 11th and are working on a radiological fact sheet that should be out by the next RAB meeting.

### Environmental Cleanup Progress Report

Mr. Tony Hunt advised that the tank removal completion date is estimated for September; about 20 tanks are remaining. As of August 11, 1998, 89 tanks have been removed and require no further action.

Zone H assessments have been awarded to TetraTech and they will begin in September to look at what sort of contaminants might have been introduced into the area.

The bioremediation pilot study was completed and submitted to the South Carolina Department of Health and Environmental Control (DHEC) for review. He noted that that project looks as though it will be approved. The corrective action report is being finalized by Southern Division.

### RCRA Facility Investigation (RFI) Update

Mr. Tony Hunt informed everyone that Fact Sheet 12 (Zones F, G, & K) is complete and available for review tonight. The draft RFI report on Zone A has been sent to the regulators for approval. The draft Corrective Measures Study (CMS) for Zone A has been submitted. The CMS will begin to look at what methods will be used to clean up the site.

Mr. Hunt stated he would like to have a presentation from EnSafe, their contractor, at the next RAB meeting to discuss the tractability studies to clean up the contaminants.

The Navy has also submitted the SWMU 607 and SWMU 166 work plans. SWMU 607 was the dry cleaners where chlorinated solvents were released and there's evidence of groundwater and soil contamination. SWMU 166 was an automobile service rack with the same contaminants.

The RFI report for Zone I has been reviewed and has received some comments. These are being addressed by the Navy.

The RCRA Part B Permit has been reviewed and the public comment period has ended. The South Carolina Department of Health and Environmental Control (DHEC) will issue that permit by the end of the month.

Mr. Hunt stated that he hopes to have the RFI report addendum on SWMU 166 submitted to the regulators in the next two months, and continue the Zone H CMS.

Mr. Hunt also commented on the status of the Hess Company work. The work plan and assessments on this have been submitted to DHEC. One plan is to install wells and extract the contaminants from the soil as vapor. Some of the petroleum products present in the soil will help dissolve the chlorine contaminants.

Ms. King inquired about radioactive materials at the base. Mr. Hunt replied that over 100 acres were surveyed. Any radioactive and radiological contaminants have been removed. Mr. Dearhart disclosed that the EPA has sent out a letter stating the surveys were completed and there were no radiological concerns in this area.

#### Chicora Tank Farm

Mr. Hunt conveyed there is a demonstration going on at the first of the three tanks. Special equipment is in place that chips away the concrete and Anibbles@ the steel rebar in the tanks. This project is proceeding as planned.

Ms. Green said there appeared to be a lack of grounds maintenance in the Chicora Tank Farm. Ms. Johnson responded, saying that the groundskeeper has cut the grass and picked up the litter and will continue to do so. Ms. King also said that people are not stopping at a stop sign where the road ends at the tank farm. The fence has been damaged here. Ms. Johnson said she would look into it.

#### Environmental Cleanup Progress Report

Ms. Johnson reported that the RDA approved a lease with Singleton Moving and Storage. Ms. Johnson also reported that the RDA has opened bids on the first EDA grant utilities improvement construction contract. The bid was 70 percent over their estimate so now they will re-bid that work.

On August 4th, the RDA met and considered a lease proposal for the Alpha pier and deferred any action on the proposed lease until the City of North Charleston has time to comment on it.

The RDA has also agreed to fund a total of \$825,000 for one year of fire and police protection.

The former McDonald's restaurant has been leased to a catering company called Sheer Delight. Also leased is the former chief's club.

The EDA has approved a \$1.7 million grant for water and sewer upgrades for the southern half of the base. Mr. Mintz asked about the situation with steam generated from the steam plant. Ms. Johnson responded that the Navy is still buying steam from the county.

#### Charleston Environmental Detachment Study

Mr. Dearhart gave a presentation on the Charleston Environmental Detachment. This group was organized in 1996. Their mission was to provide the government with an economical and quality alternative to address environmental concerns. The Detachment began with 172 individuals and are now down to 148 people. They have pulled over 300 underground storage tanks in the State of South Carolina and have recycled as much of the recyclable material as possible. Their group has specialized equipment that nibbles away at concrete tanks; a vacloader that sucks up asbestos; x-ray fluorescent analyzer, remote control backhoe, and an in-house lab for soil testing and asbestos analysis.

Mr. Dearhart said they have a box full of newspaper articles written about their work. He then detailed their work experience, noting that they've: removed asbestos and lead paint in over 200 projects, removed unexploded ordnance, cleaned up petroleum spills, completed radiological surveys, removed over 15 tons of coal from the shipyard, built tank trails, have done underwater debris removal, provide environmental oversight and inspection on the tour boat pier next to the aquarium; excavated petroleum-contaminated soil at Vice President Gore's home in Virginia; installed groundwater monitoring wells, have done school presentations for Earth Day and Career Day, taken part in rescue drills for people who have fallen into deep holes, and have supported the Coast Guard, State Border Patrol, Department of Defense, NOAA, U.S. Customs, and SPAWAR.

Mr. Dearhart noted that the Environmental Detachment is to be disbanded in September 1999, but they have been talking to congressmen to try to find a niche for themselves. Mr. Dearhart said that they would very much like to continue their work and be based in Charleston well into the future.

Ms. King asked what was done with the contaminants, once they are removed. Mr. Dearhart explained that contaminated material is taken to a local landfill that is approved to accept certain contaminants. Some of the coal went to SCE&G for steam generation and some went to asphalt companies. The coal that was unuseable went to a landfill where they use it as daily cover material.

#### Discussion of Last Meeting Minutes

Mr. Mintz asked for comments on the minutes from the June meeting. No comments were made on the minutes, and minutes were approved as distributed.

#### Comments and Questions

No other comments were made. The next RAB meeting is October 13, 1998 at 6:00 p.m. at the Live Oak Community Center at 2012 Success Street, North Charleston, SC.

Mr. Dearhart presented a plaque and letter of appreciation to Daryle Fontenot in recognition of his service. Mr. Mintz also presented a letter of appreciation from the RAB members to Mr. Fontenot.

*Meeting Adjourned*

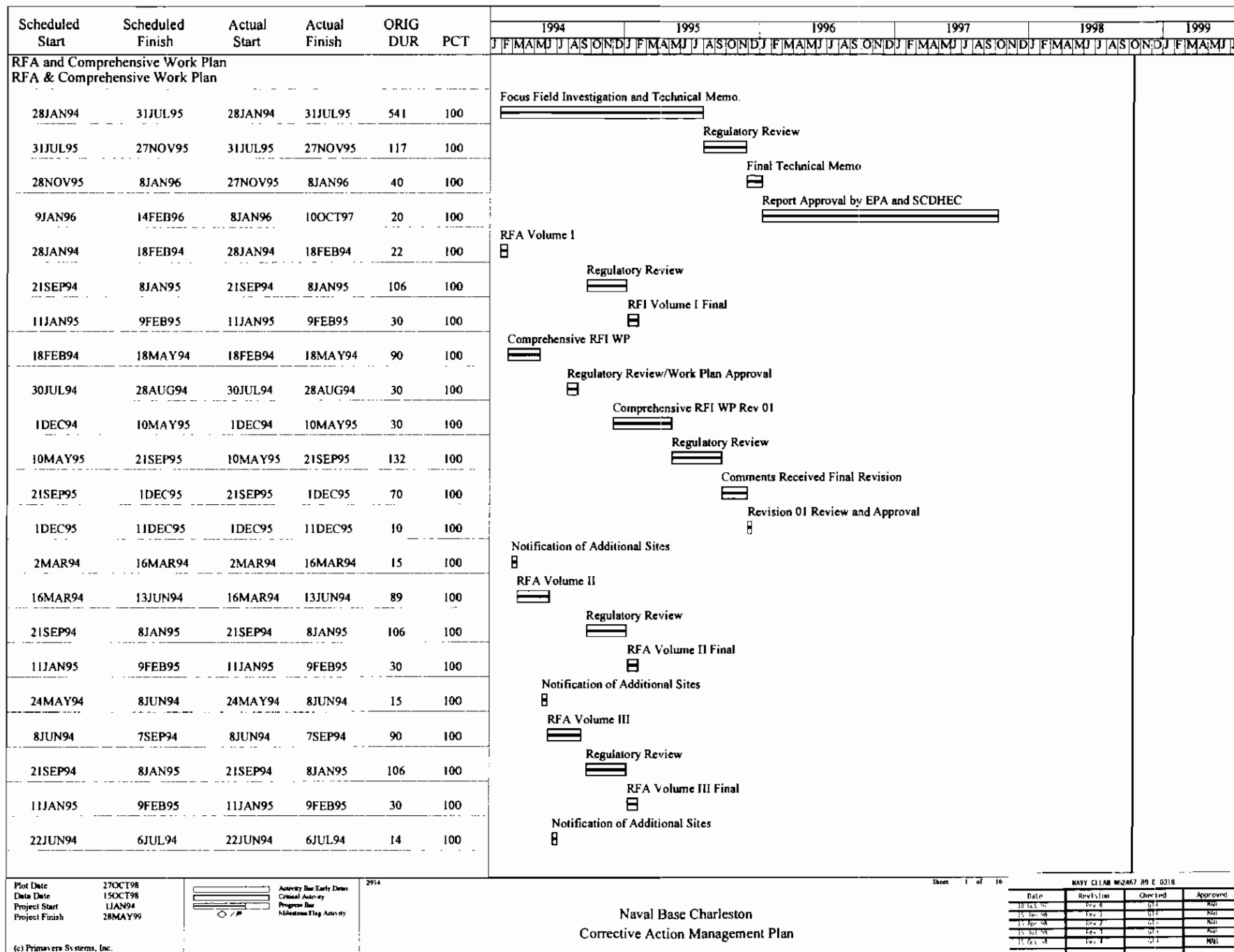
Minutes approved by:

\_\_\_\_\_  
Tony Hunt, Navy Co-Chair

\_\_\_\_\_  
Louis Mintz, Community Co-Chair

## **SWMU 166/ AOC 607 CMS Schedule**

<b>Draft CMS Work Plan Submittal</b>	<b>13 April 1998</b>
<b>Draft Final CMS Work Plan and Response to Comments</b>	<b>21 July 1998</b>
<b>SCDHEC CMS Work Plan Approval</b>	<b>08 Oct 1998</b>
<b>CMS Work Plan Implementation</b>	<b>19 Oct 1998</b>
<b>Draft TS Work Plan Submittal</b>	<b>20 Nov 1998</b>
<b>TS System Construction</b>	<b>Jan 1998</b>
<b>TS Implementation</b>	<b>Feb 1998-Apr 1998</b>
<b>TS Results and Report</b>	<b>June 1998</b>
<b>Draft CMS Report</b>	<b>July 1998</b>
<b>Draft Final CMS Report and Response to Comments</b>	<b>September 1998</b>



Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994 1995 1996 1997 1998 1999											
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4OCT94	2NOV94	4OCT94	2NOV94	30	100												
7NOV94	8JAN95	7NOV94	8JAN95	59	100												
11JAN95	9FEB95	11JAN95	9FEB95	30	100												
11OCT94	26OCT94	11OCT94	26OCT94	16	100												
26OCT94	24JAN95	26OCT94	24JAN95	87	100												
25JAN95	10MAR95	25JAN95	10MAR95	45	100												
10MAR95	10APR95	10MAR95	10APR95	32	100												
10APR95	10MAY95	10APR95	10MAY95	31	100												
12JUL95	28JUL95	12JUL95	28JUL95	31	100												
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Plot Date 27OCT98

Date Date 15OCT98

Project Start 11JAN94

Project Finish 28MAY99

Activity Bar Entry Dates

Overall Activity

Program Bar

Milestone Flag Activity

1914

Sheet 2 of 16

NAVY CLEAN N61467-89-D-0318

Date

Revision

Checked

Approved

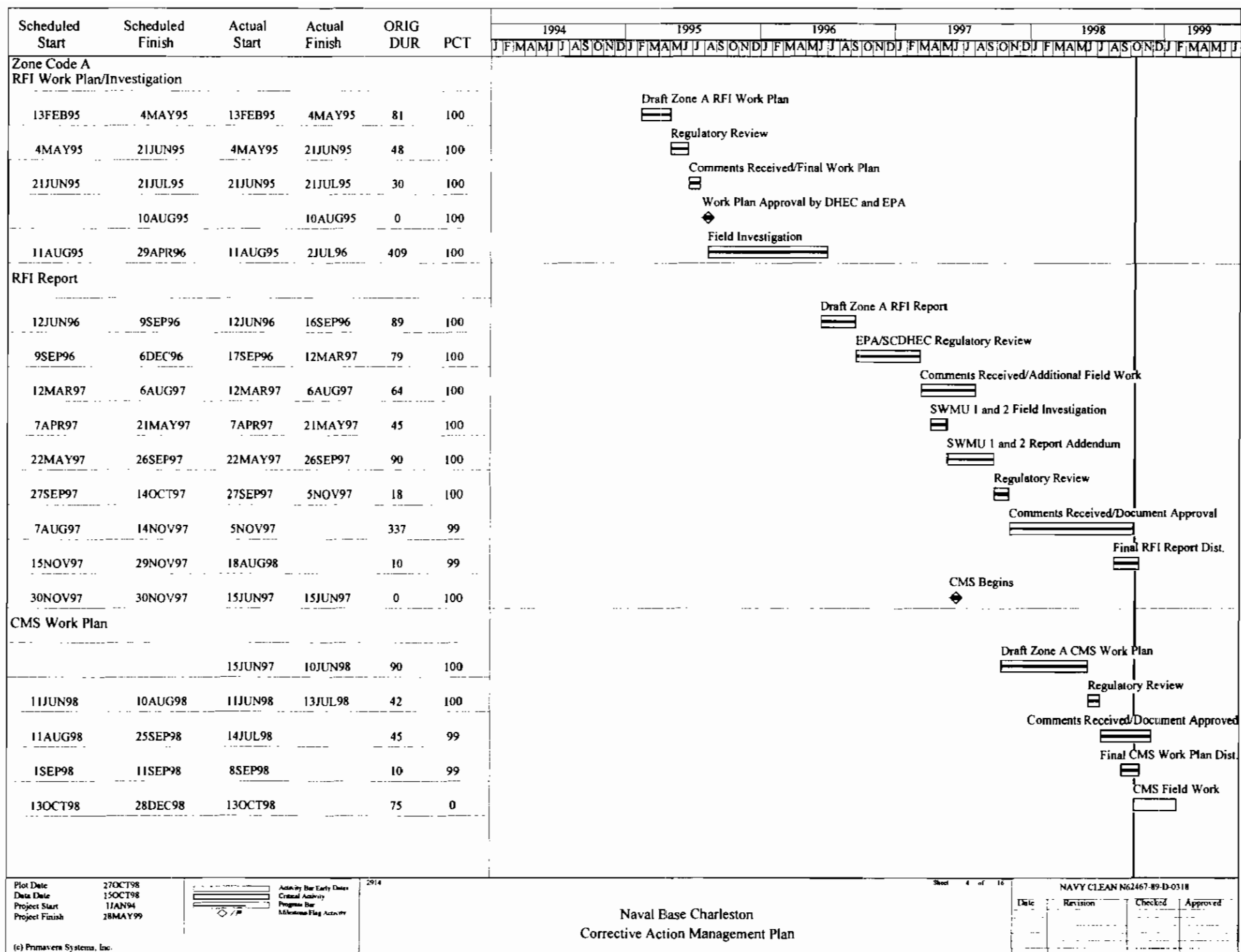
Naval Base Charleston

Corrective Action Management Plan

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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994 1995 1996 1997 1998 1999											
Zone Code B																	
RFI Work Plan/Investigation																	
13FEB95	4MAY95	13FEB95	4MAY95	81	100												
4MAY95	5JUN95	4MAY95	21JUN95	48	100												
21JUN95	21JUL95	21JUN95	21JUL95	30	100												
			10AUG95	0	100												
11AUG95	8DEC95	11AUG95	19JAN96	157	100												
RFI Report																	
6DEC95	4MAR96	8JAN96	5MAR96	57	100												
4MAR96	2APR96	5MAR96	18OCT96	30	100												
5NOV96	16DEC96	19OCT96	8JAN97	40	100												
1MAY96	10MAY96	9JAN97	31JAN97	10	100												

**Legend:**

- Activity Bar/Early Dates
- Critical Activity
- Program Bar
- Milestone/Tag Activity

**Activity Details:**

- Draft Zone B RFI Work Plan** (Activity Bar)
- Regulatory Review** (Activity Bar)
- Comments Received/Final Work Plan** (Activity Bar)
- Work Plan Approval by DHEC and EPA** (Milestone/Tag Activity)
- Field Investigation** (Activity Bar)
- Draft Zone B RFI Report** (Activity Bar)
- EPA/SCDHEC Regulatory Review** (Activity Bar)
- Comments Received/Document Approved** (Activity Bar)
- Final RFI Report Distributed** (Activity Bar)

Plot Date: 27OCT98  
 Data Date: 15OCT98  
 Project Start: 11JAN94  
 Project Finish: 28MAY99

Naval Base Charleston  
 Corrective Action Management Plan

NAVY CLEAN N62467-89-D-0318

Date	Revision	Checked	Approved

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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994												1995												1996												1997												1998												1999																																																																																			
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10SEP97	14NOV97	10SEP97	12NOV97	66	100																																																																																																																																																
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7OCT98	22NOV98			45	0																																																																																																																																																

Draft Zone C RFI Work Plan

Regulatory Review

Comments Received/Final Work Plan

Conditional Work Plan Approval by DHEC and EPA

Field Investigation

Draft Zone C RFI Report

EPA/SCDHEC Regulatory Review

Comments Received/Additional Field Work

Final RFI Report Distributed

Document Approval

CMS Begins

Draft Zone C CMS Work Plan

Regulatory Review

Comments Rec'd/Document Approved

Plot Date: 27OCT98  
Date Due: 15OCT98  
Project Start: 11JAN94  
Project Finish: 28MAY99

Activity Bar/Early Dates  
Critical Activity  
Program Bar  
Milestone Flag Activity

Sheet 4 of 16

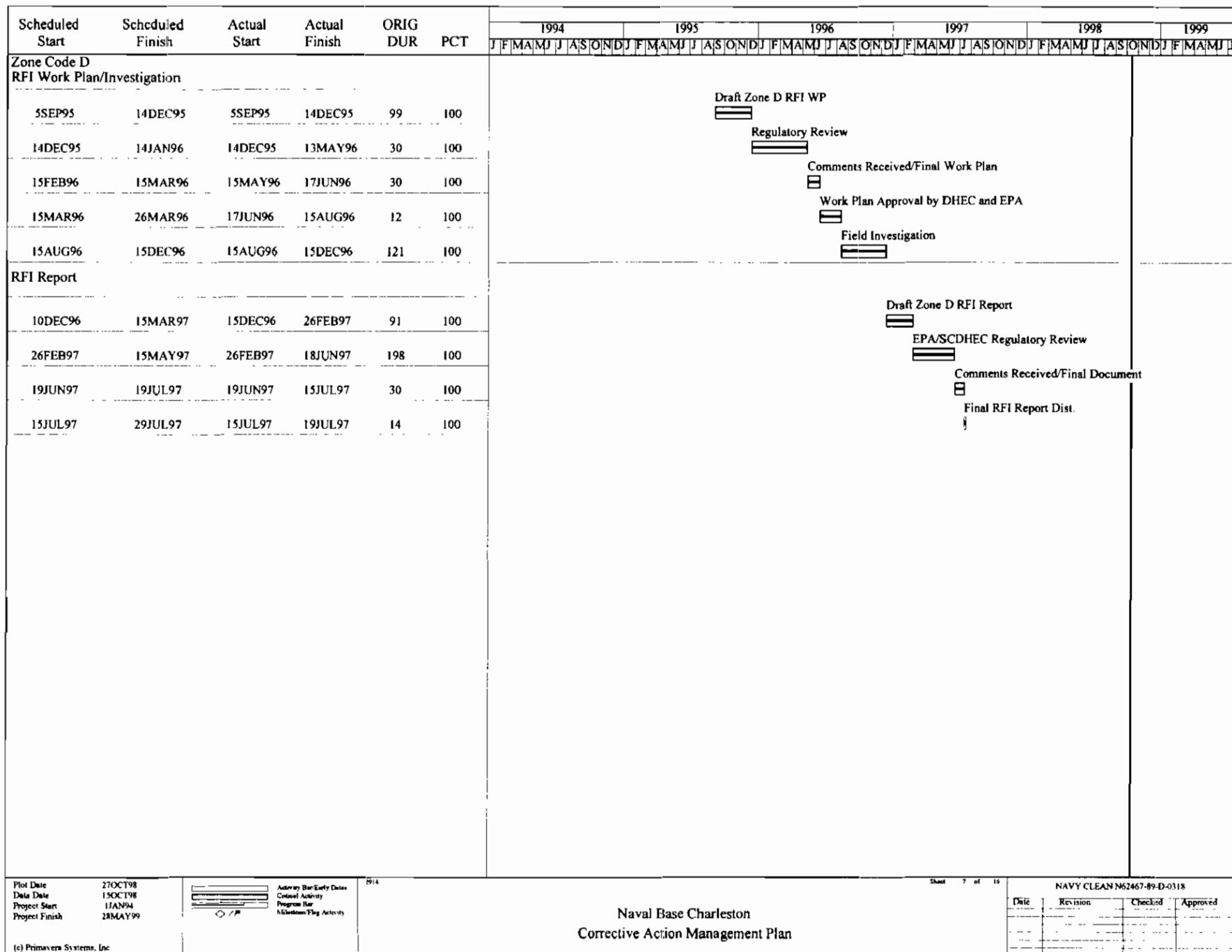
NAVY CLEAN N62467-89-D-0318

Date	Revision	Checked	Approved

Naval Base Charleston

Corrective Action Management Plan

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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT
<b>Zone Code E RFI Work Plan/Investigation</b>					
11NOV94	14FEB95	11NOV94	14FEB95	92	100
14FEB95	15MAR95	14FEB95	1MAY95	30	100
1MAY95	31MAY95	1MAY95	2JUN95	30	100
			9AUG95	0	100
9AUG95	24FEB97	9AUG95	11JUN97	555	100
<b>RFI Report</b>					
11JUN97	7NOV97	11JUN97	12NOV97	148	100
8NOV97	7MAR98	13NOV97		329	81
8MAR98	12MAY98			0	0
13MAY98	12JUN98			0	0
<b>CMS Work Plan</b>					
13JUN98	13JUN98			0	0

Sheet 8 of 16

NAVY CLEAN N62467-89-D-0118

Date Revision Checked Approved

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Naval Base Charleston  
Corrective Action Management Plan



Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994 1995 1996 1997 1998 1999											
Zone Code G																	
RFI Work Plan/Investigation																	
5SEP95	14DEC95	5SEP95	14DEC95	99	100												
14DEC95	14JAN96	14DEC95	15MAY96	30	100												
15FEB96	15MAR96	15MAY96	17JUN96	30	100												
15MAR96	24MAR96	17JUN96	15AUG96	10	100												
24MAR96	15MAR97	15AUG96	11JUN97	654	100												
RFI Report																	
12JUN97	15JAN98	12JUN97	4MAR98	261	100												
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2APR98	13MAY98			42	0												
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CMS Work Plan																	
28MAY98	28MAY98			0	0												

Plot Date 27OCT98  
Data Date 15OCT98  
Project Start 11JAN94  
Project Finish 28MAY99

Activity Bar Early Dates  
Critical Activity  
Program Bar  
Milestone Flag Activity

2014

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NAVY CLEAN N62467-85-D-0318

Naval Base Charleston

Corrective Action Management Plan

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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	Gantt Chart (1994-1999)																																															
Zone Code H																																																					
RFI Work Plan/Investigation																																																					
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		29DEC94	29DEC94	1	100	Work Plan Approval by DHEC and EPA																																															
8AUG94	4MAR95	8AUG94	1MAY95	262	100	Field Investigation																																															
RFI Report																																																					
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31JUL95	31AUG95	31JUL95	27NOV95	117	100	Regulatory Review																																															
27NOV95	27DEC95	27NOV95	27DEC95	30	100	Comments Received/Resubmit Report																																															
28DEC95	27JAN96	27NOV95	6MAY96	60	100	Regulatory Review																																															
8MAY96	8JUL96	8MAY96	8JUL96	60	100	Comments Received/Resubmit Report																																															
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CMS Work Plan																																																					
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9MAY98	8NOV98	9MAY98		181	60	CMS Field Investigation																																															

Plot Date: 27OCT98  
Data Date: 15OCT98  
Project Start: 17AN94  
Project Finish: 28MAY99

Activity Bar: Early Dates  
Critical Activity  
Program Bar  
Milestone Flag Activity

Sheet 11 of 16

NAVY CLEAN N62467-89-D-0318

Date	Revision	Checked	Approved

Naval Base Charleston

Corrective Action Management Plan

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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT
<b>Zone Code I</b>					
<b>RFI Work Plan/Investigation</b>					
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		28FEB95	27MAR95	0	100
30JAN95	25SEP95	30JAN95	25SEP95	236	100
<b>RFI Report</b>					
13JUL95	11DEC95	13JUL95	26JAN96	174	100
26JAN96	24FEB96	26JAN96	7NOV97	618	100
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<b>CMS Work Plan</b>					
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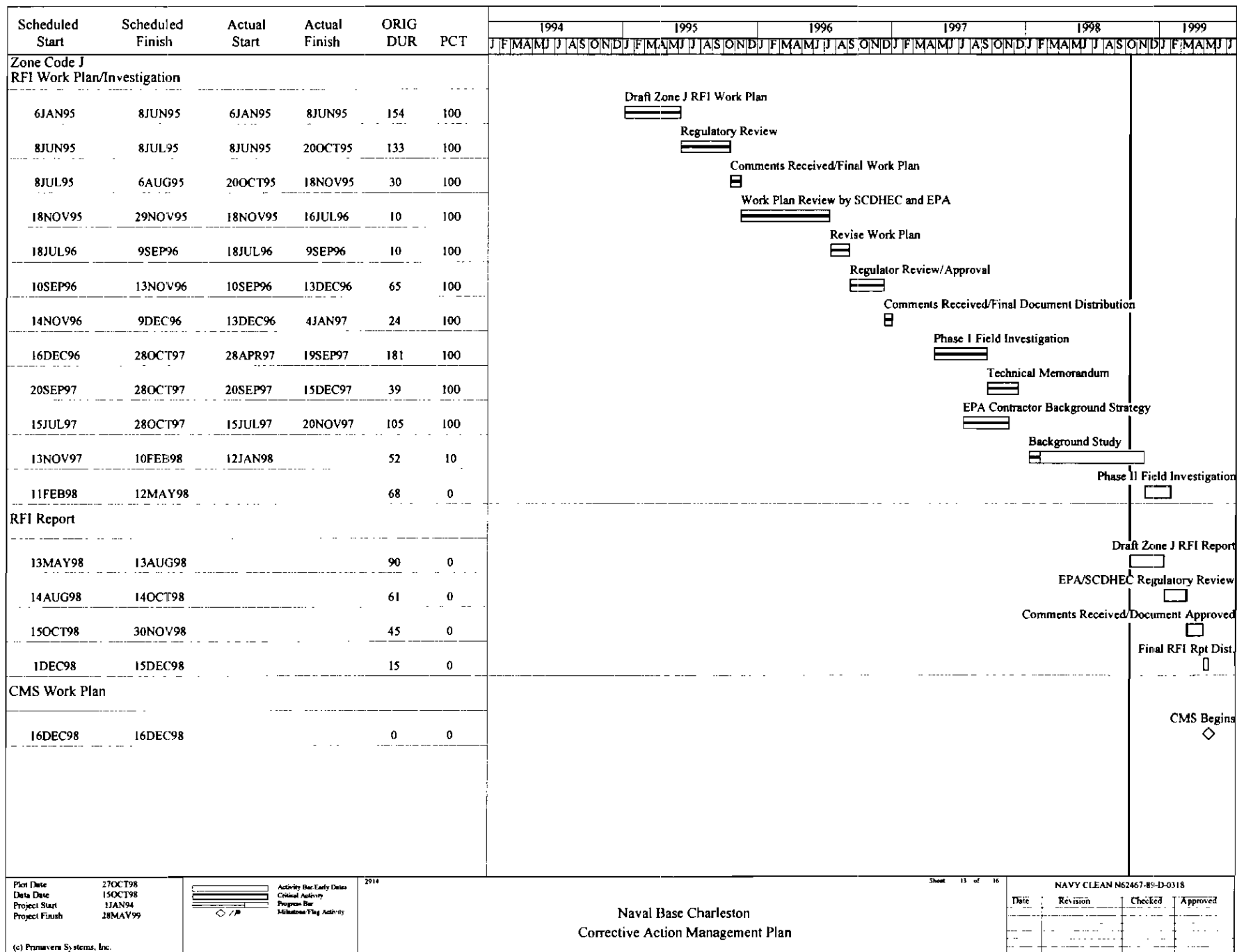
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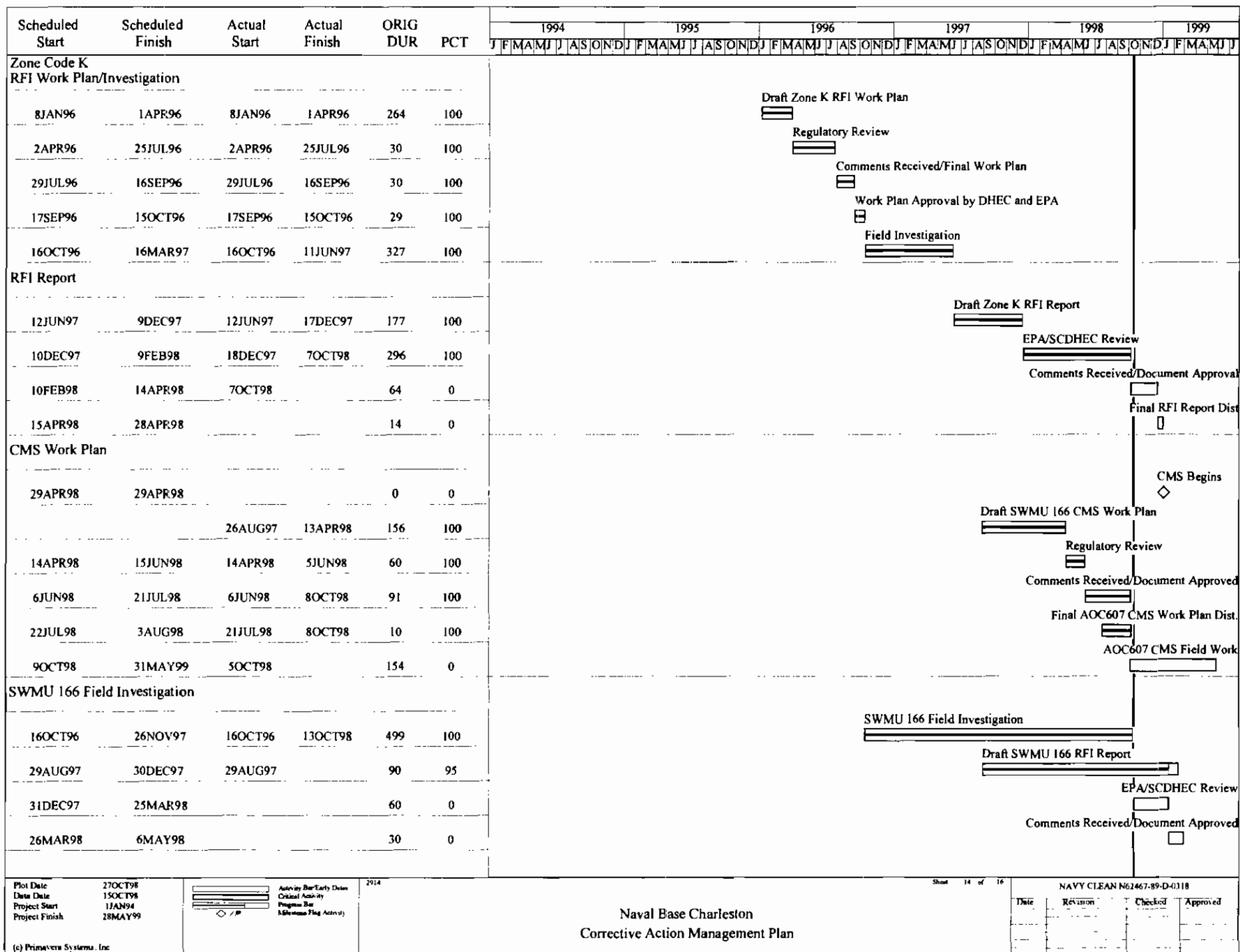
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Date	Revision	Checked	Approved

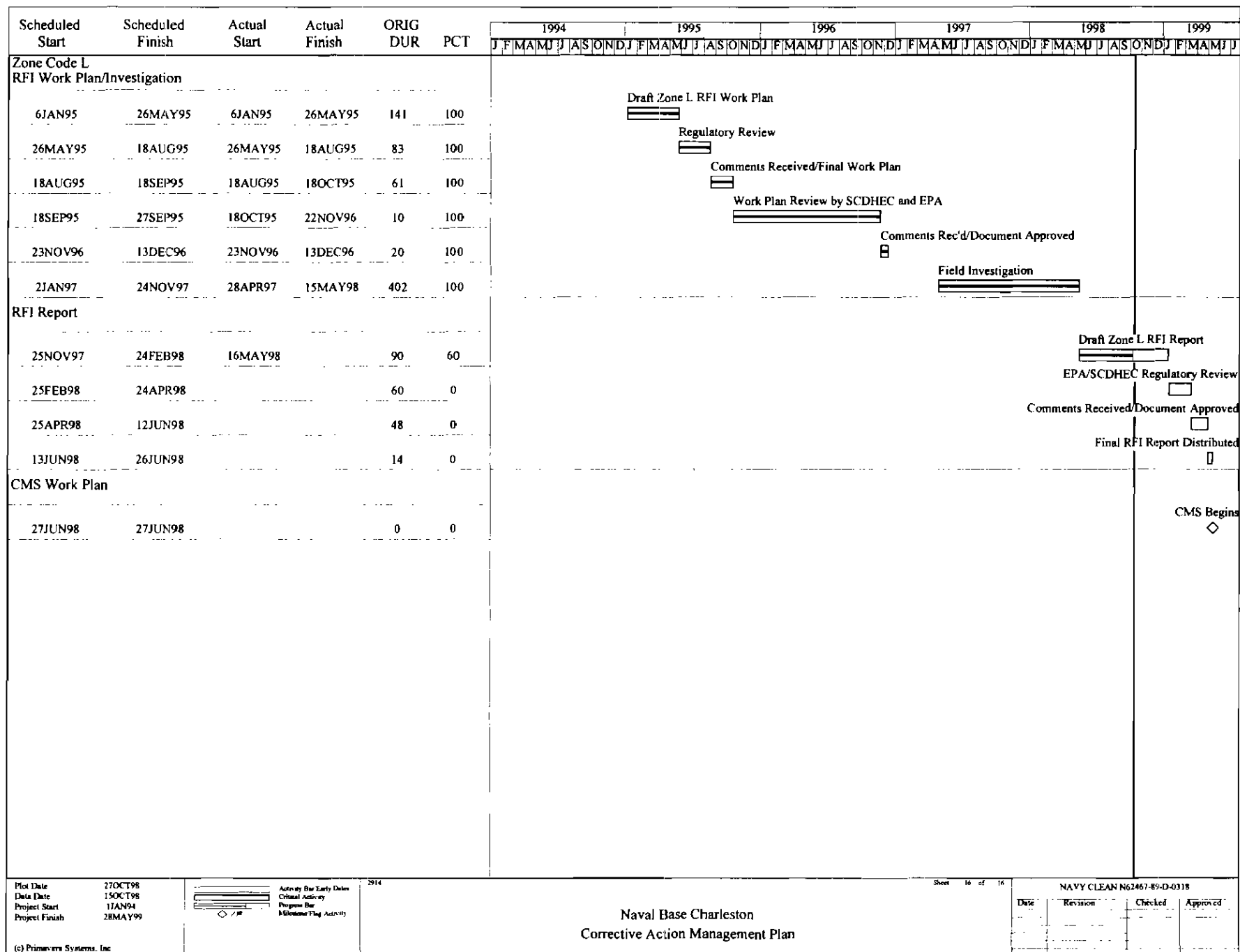
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Naval Base Charleston  
Corrective Action Management Plan





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Plot Date 27OCT98  
Data Date 15OCT98  
Project Start 1JAN94  
Project Finish 28MAY99



Activity Bar Early Dates  
Critical Activity  
Progress Bar  
Milestone Flag Activity

2014

Sheet 16 of 16

NAVY CLEAN N62467-89-D-0318

Date	Revision	Checked	Approved

Naval Base Charleston  
Corrective Action Management Plan

NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING  
Minutes of 10 February 1998

LIVE OAK COMMUNITY CENTER, 2012 SUCCESS ST., N. CHARLESTON, SC

1. Introduction of the RAB members and Guests

Mr. Daryle Fontenot, Navy Co-Chair, brought the meeting to order at 6:00 p.m. He began by introducing himself. Member and audience introductions were made.

2. RAB Members Attending

Mr. Steve Best	Mr. Bobby Dearheart
Mr. Daryle Fontenot	Mr. Tom Fressilli
Mr. Wilburn Gilliard	Ms. Gussie Green
Ms. Jeri Johnson	Ms. Wannetta Mallette-Pratt
Mr. Louis Mintz	Mr. Arthur Pinckney
LCDR Paul Rose	Mr. Dann Spariosu
Ms. Priscilla Wendt	

3. Guests Attending

Mr. Tony Hunt	NAVFAC, Southern Division
Mr. Gabriel Magwood	NAVFAC, Southern Division
Mr. Johnny Tapia	South Carolina DHEC
Ms. Betty Harris	Community Member
Mr. Barry Dively	Charleston Hilton
Ms. Myrtle Barnett	Community Member
Mr. J. Michael Ruebish	EDC
Mr. Joseph M. Land, Sr.	Galileo Quality Institute
Mr. Oscar N. McNeil	Bechtel
Mr. V.P. Simmons	Community Member
Mr. Billy Drawly	NAVFAC, Southern Division
Mr. Henry Shepard	CSO
Mr. Keith Johns	EnSafe, Inc.

4. Administrative Remarks and Discussion of Last Meeting Minutes

Mr. Fontenot asked for comments on the minutes from the December meeting. A request was made for clarification of the second paragraph on page 2 (Section 6, paragraph 2) of the December 1997 minutes regarding the rehabilitation certification. Mr. Fontenot clarified that it has to do with the underground storage tanks and not the asbestos and lead paint. No other comments were made to the minutes.

## 5. Subcommittee Reports

### *Community Relations Subcommittee*

Mr. Fontenot reported on the Community Relations Subcommittee. The subcommittee met prior to the RAB meeting with Mr. Fontenot, Wannetta Mallette-Pratt, Lou Mintz, Arthur Pinckney, and Keith Johns of EnSafe. There was a discussion of the goals for 1998. These include advertising to RAB members and the members of the community, Fact Sheets, and training for the RAB and possibly for the public. A decision was made for the subcommittee to begin meeting every month instead of only the months when the RAB meetings occur. The next subcommittee meeting will be March 12, 1998 at 3:00 p.m. and all RAB members are invited to attend.

Mr. Fontenot also proposed a field visit, for either April 16 or 17, 1998. A show of hands produced four interested in a field visit. He requested that everyone give it thought and it will be discussed again at the RAB meeting on April 14, 1998 at which time he will have a specific date and time scheduled for the visit. Based on group discussion, Mr. Fontenot will try to schedule the visit for either the afternoon of April 16 or the morning of April 17, 1998. Mr. Fontenot also asked the board members about the usefulness of the meeting flyers sent to each member for distribution. There was general agreement that this should continue.

## 6. Environmental Cleanup Progress Report

### *Chicora Tank Farm*

Mr. Fontenot reported that work has begun on five of the six tanks. The inside of one tank has been completely cleaned. Regarding the other four tanks, all sludges and liquids were removed during the first few weeks of 1998. The next step is to complete negotiations for cleaning the tanks, as well as the abandonment and pigging of (a method of cleaning) the pipeline.

### *Underground Storage Tanks*

In a brief update of the Underground Storage Tank (UST) program, Mr. Fontenot noted that approximately 116 USTs have been removed to date. Fourteen areas are in need of assessment. This action is currently waiting on a rehabilitation certification from DHEC for the Detachment to be able to do the assessment work. The rehabilitation certification is expected March 1, 1998.

### *Asbestos and Lead Based Paint Program*

Mr. Fontenot reported that surveys are being done and are nearly complete. The reports are due at the end of February, 1998. Some abatement has already been done in the housing area.

Mr. Fontenot turned the meeting over to Mr. Tony Hunt to provide the progress report on the RCRA Facility Investigation.



### *RCRA Facility Investigation (RFI) Update*

Mr. Hunt, with Southern Division, requested discussion on involving the RAB with some of the steps in the corrective action process.

Mr. Hunt reported the progress for December and January. The Draft Zone K RFI Report and Draft Zone F RFI Report have been submitted. Work has been done to resolve the comments on the Draft Zone I RFI Report and the document is being prepared for resubmittal to the regulators. Mr. Hunt stated that the Navy is also in the process of resolving comments on the RCRA Part B permit application. The Navy was issued a RCRA Part B permit for storage of hazardous waste as part of its operation, and a requirement to hold the permit is corrective action at solid waste management units (SWMUs). He explained that that is the part of the permit that the Navy is complying with in the RFI and Corrective Measures Study (CMS) work. Mr. Hunt advised that public comment on the permit would come in the next several months. Mr. Hunt stated that comments were received on the preliminary data from Zone J from both the Department of Natural Resources and Fish & Wildlife Service and were able to have a meeting with most parties involved. The group determined that another meeting was needed. They are in the process of setting up a second meeting.

Mr. Hunt reported on the projected activity for February and March. Field work will continue on SWMU 166. Comments will be resolved on the Zone H Corrective Measure Study Work Plan.

The Navy is planning to meet with Hess tomorrow and will hopefully find out what their assessment has found regarding the petroleum contamination along the north edge of the facility, and what their plans for corrective action will be.

Mr. Hunt introduced the discussion topic of "Presumptive Remedy." He defined a Presumptive Remedy as a remedy that's been found to have a high success rate on common types of hazardous waste sites, such as municipal landfills. The Presumptive Remedy concept is explained in an EPA handout available at tonight's meeting. The handout is a summary of the directive from EPA which talks about the characteristics of a landfill that would make it a candidate for a presumptive remedy and what sort of decision framework would be needed to determine whether or not it would apply to a particular site.

The use of a presumptive remedy on SWMU 9 (military landfill) – which in this case is containment – bypasses the normal Corrective Measures Study process. The remedy is based on what the EPA already knows will work at municipal landfills, and military landfills of this type are considered to be the same as municipal landfills. Using this presumptive remedy saves time and money over excavation or solidification of the landfill material. Using a presumptive remedy expedites the selection of the corrective measure by using existing data, and by focusing the feasibility study on what we already know works. Before a Presumptive Remedy can be used, some issues must be reviewed, such as disruption of habitat and surface water flow.

Q: Does the presumptive remedy apply only to SWMU 9?

Mr. Hunt: There are several other presumptive remedies. However, this particular remedy, as far as military landfills, applies only to SWMU 9. It probably won't apply to other landfills on base, such as SWMU 14, which contains chemicals.

Q: Does the presumptive remedy only apply to containment within the landfill? What about off site migration?

Mr. Hunt: The presumptive remedy addresses containment, which includes containing the migration.

Q: Is there any cross contamination with the North Charleston city dump, which is right across the tracks. The dump was built unlined in approximately 1972.

Mr. Hunt: There is no evidence from the groundwater that there is a plume migrating in that direction.

Q: When do you NOT use presumptive remedy?

Mr. Hunt: When other remedies may be more effective, more timely, or cheaper.

Q: Is this being looked at for the whole landfill or just parts of it?

Mr. Hunt: We are still discussing that.

Q: How old is this landfill?

Mr. Hunt: Began in the 1940's.

Mr. Daryle Fontenot followed up on the Environmental Cleanup Report by stating that, when the RAB meets in April, DHEC will discuss public participation in the RCRA Part B permit and other issues.

## 7. Reuse Update

Ms. Jeri Johnson (Charleston Naval Complex Redevelopment Authority) gave an update, summarized in the tenants summary available on the back table at the meeting. Sixty percent of the facilities on the base have been leased either to private or federal tenants. 3700 jobs have been developed; half of which are through private tenants with the Redevelopment Authority and the other half are through federal agencies. Leasing has been slow over the winter, but is still moving forward.

## 8. Comments and Questions

Ms. Gussie Green stated that she is pleased that work is going on at the Tank Farm.

9. New Business and Next Meeting

Ms. Wannette Mallette-Pratt, Community Co-Chair, thanked the community members for their support over the last year, then acknowledged to the group that her term as co-chair had expired. She noted that a new Community Co-Chair should be elected. Mr. Lou Mintz was elected as the new Community Co-chair.

The next meeting will be Tuesday, April 14, 1998 at 6:00 p.m. at the Live Oak Community Center, 2012 Success St., N. Charleston, SC.

10. Adjournment

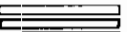



Minutes prepared by: Keith Johns and Melanie Snyder, EnSafe, Inc.

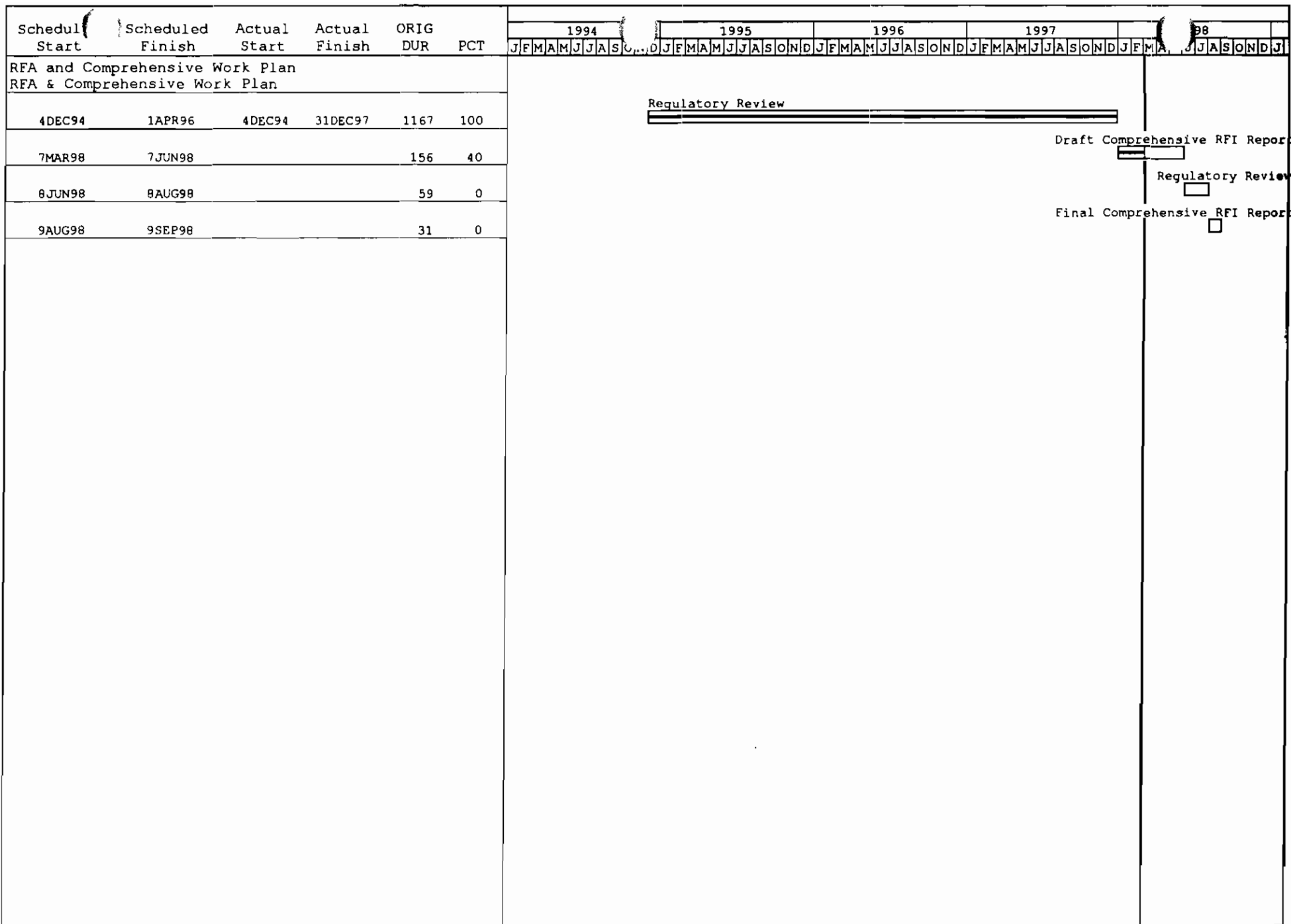
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Daryle Fontenot  
Navy Co-Chair

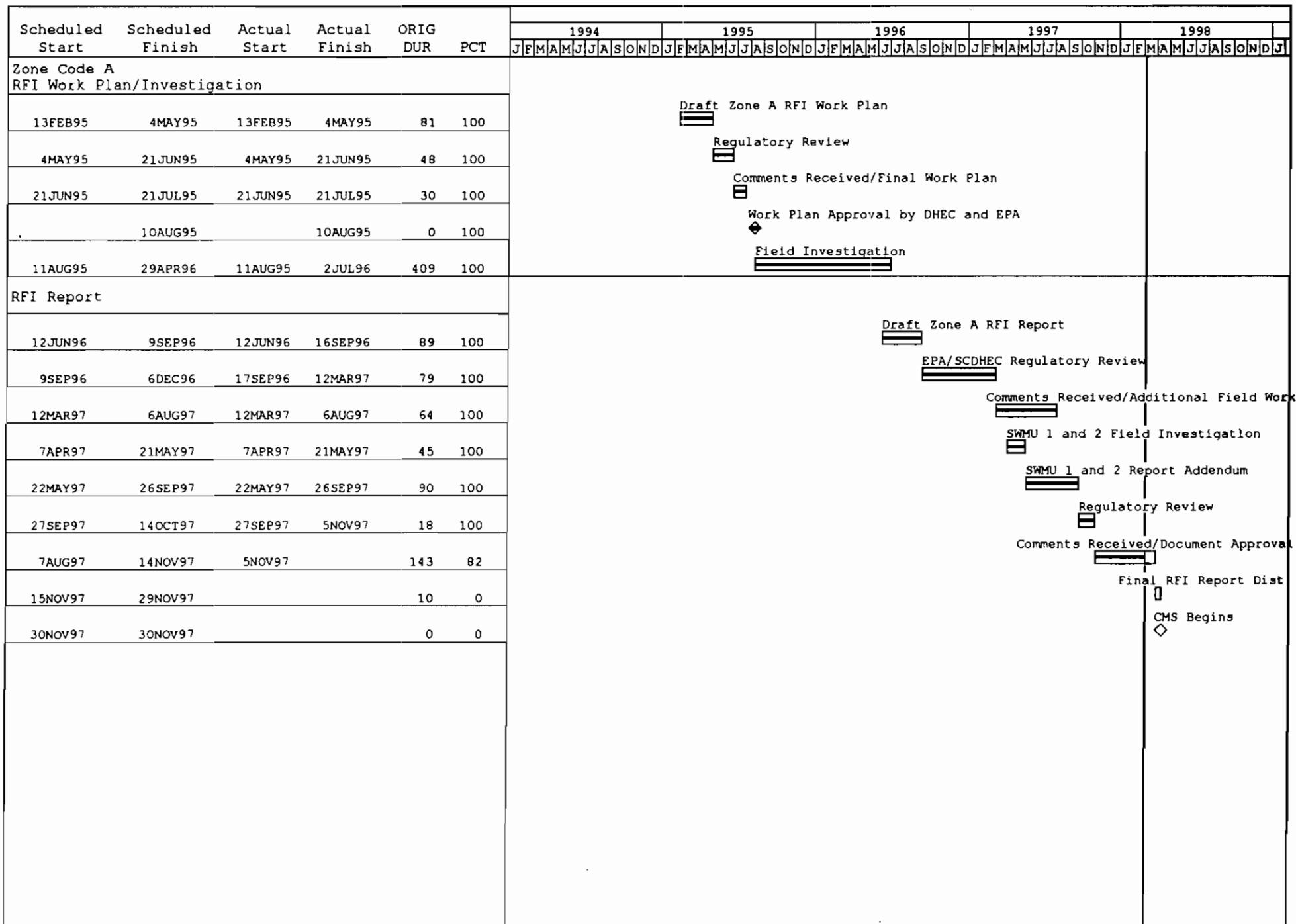
\_\_\_\_\_  
Lou Mintz  
Community Co-Chair

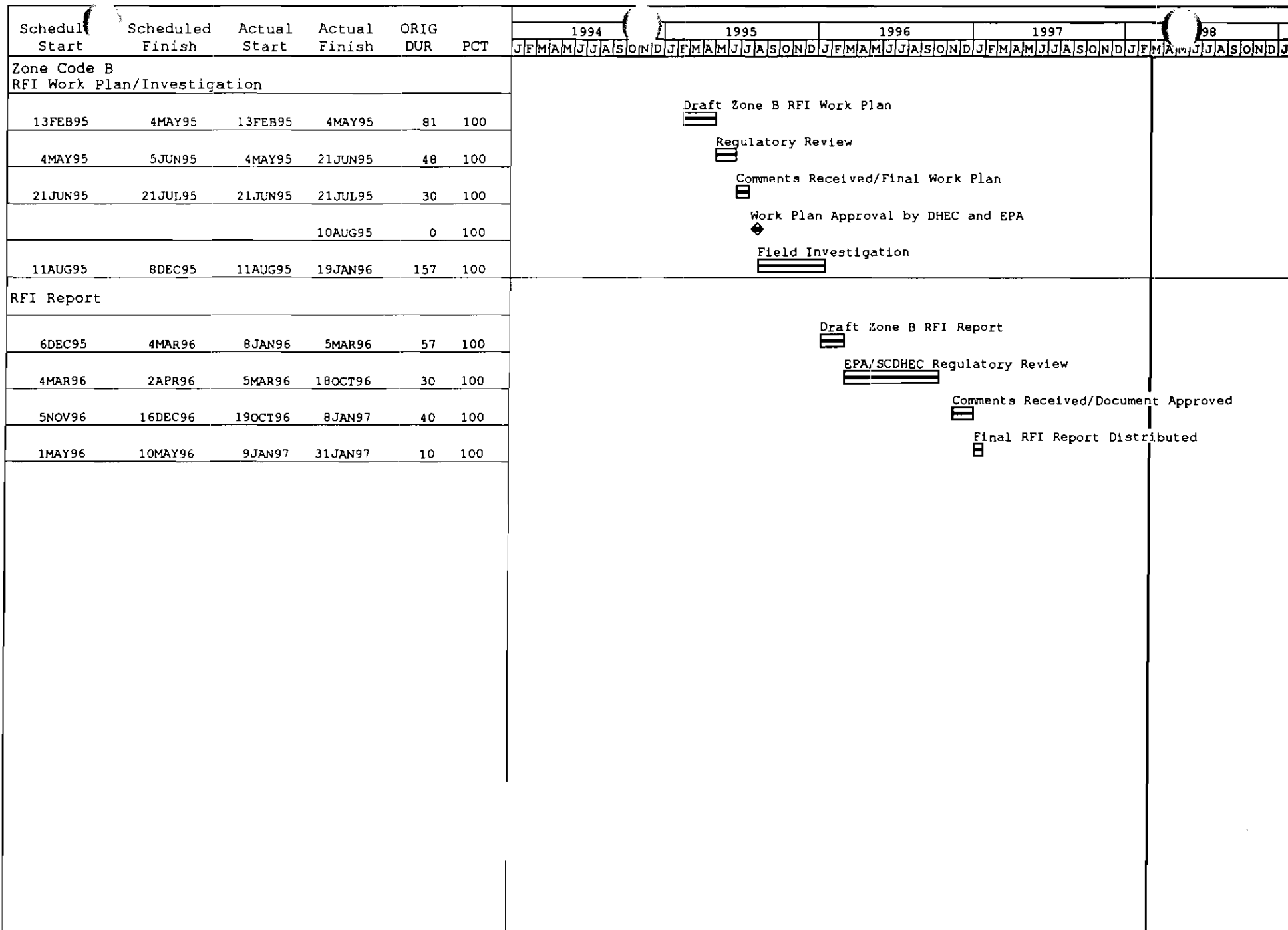
Naval Base Charleston  
Corrective Action Management Plan

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						J	F	M	A	M	J	J	A	S	O	N	D
RFA and Comprehensive Work Plan						J	F	M	A	M	J	J	A	S	O	N	D
RFA & Comprehensive Work Plan						J	F	M	A	M	J	J	A	S	O	N	D
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Plot Date Data Date Project Start Project Finish	17APR98 6MAR98 1JAN94 15DEC98	 Activity Bar/Early Dates  Critical Activity  Progress Bar  Milestone/Flag Activity	2910	Sheet 2 of 15	NAVY CLEAN 862467-89-D-0318															
Naval Base Charleston Corrected Action Management Plan				<table border="1"> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> <tr> <td>18 Sep 97</td> <td>Rev 8</td> <td>cm</td> <td>cm</td> </tr> <tr> <td>18 Feb 98</td> <td>Rev 1</td> <td>cm</td> <td>cm</td> </tr> <tr> <td>18 Apr 98</td> <td>Rev 2</td> <td>cm</td> <td>cm</td> </tr> </table>	Date	Revision	Checked	Approved	18 Sep 97	Rev 8	cm	cm	18 Feb 98	Rev 1	cm	cm	18 Apr 98	Rev 2	cm	cm
Date	Revision	Checked	Approved																	
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18 Feb 98	Rev 1	cm	cm																	
18 Apr 98	Rev 2	cm	cm																	







Plot Date 17APR98  
 Date Date 6MAR98  
 Project Start 1JAN94  
 Project Finish 15DEC98



Activity Bar/Early Dates  
 Critical Activity  
 Progress Bar  
 Milestone/Flag Activity

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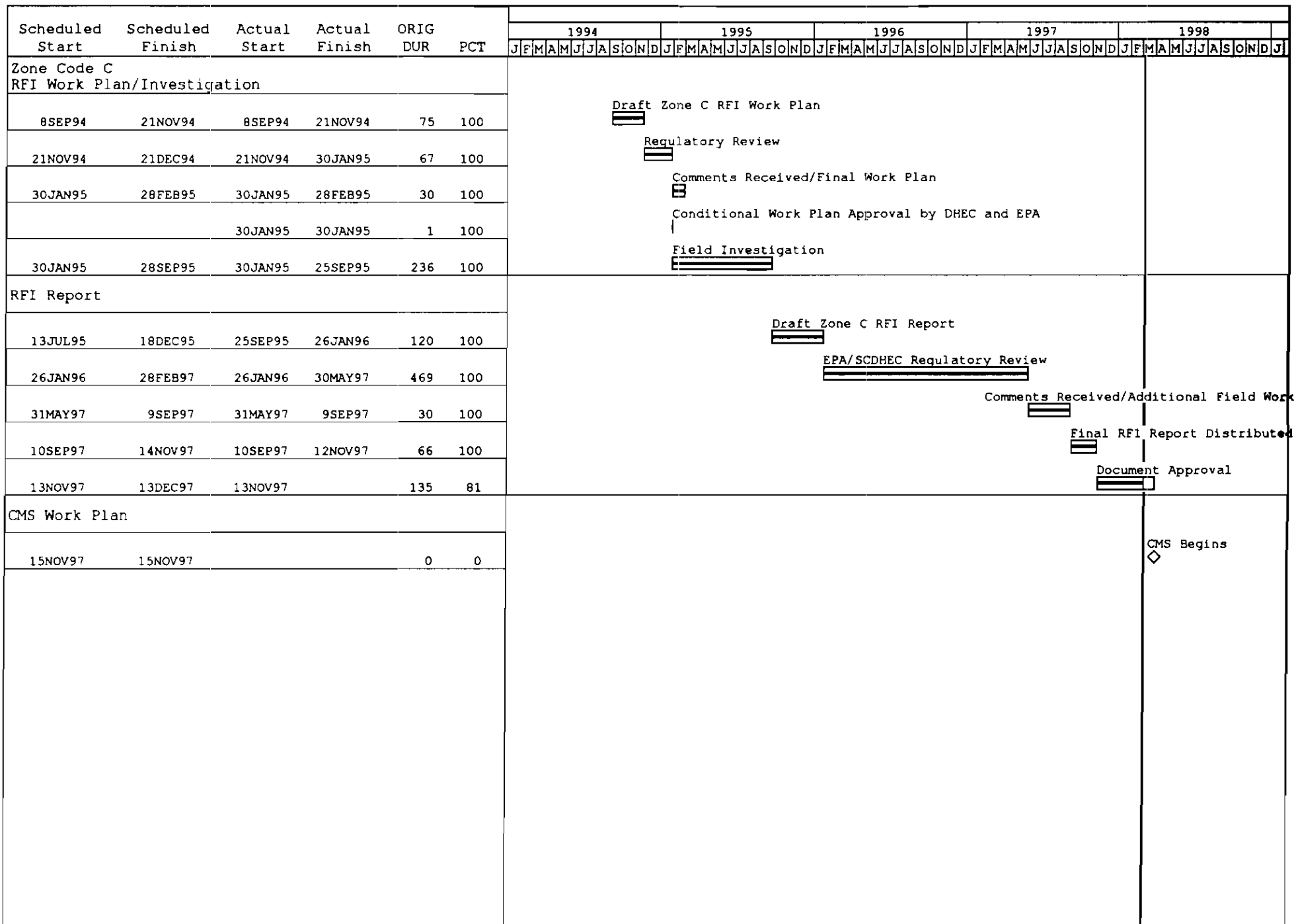
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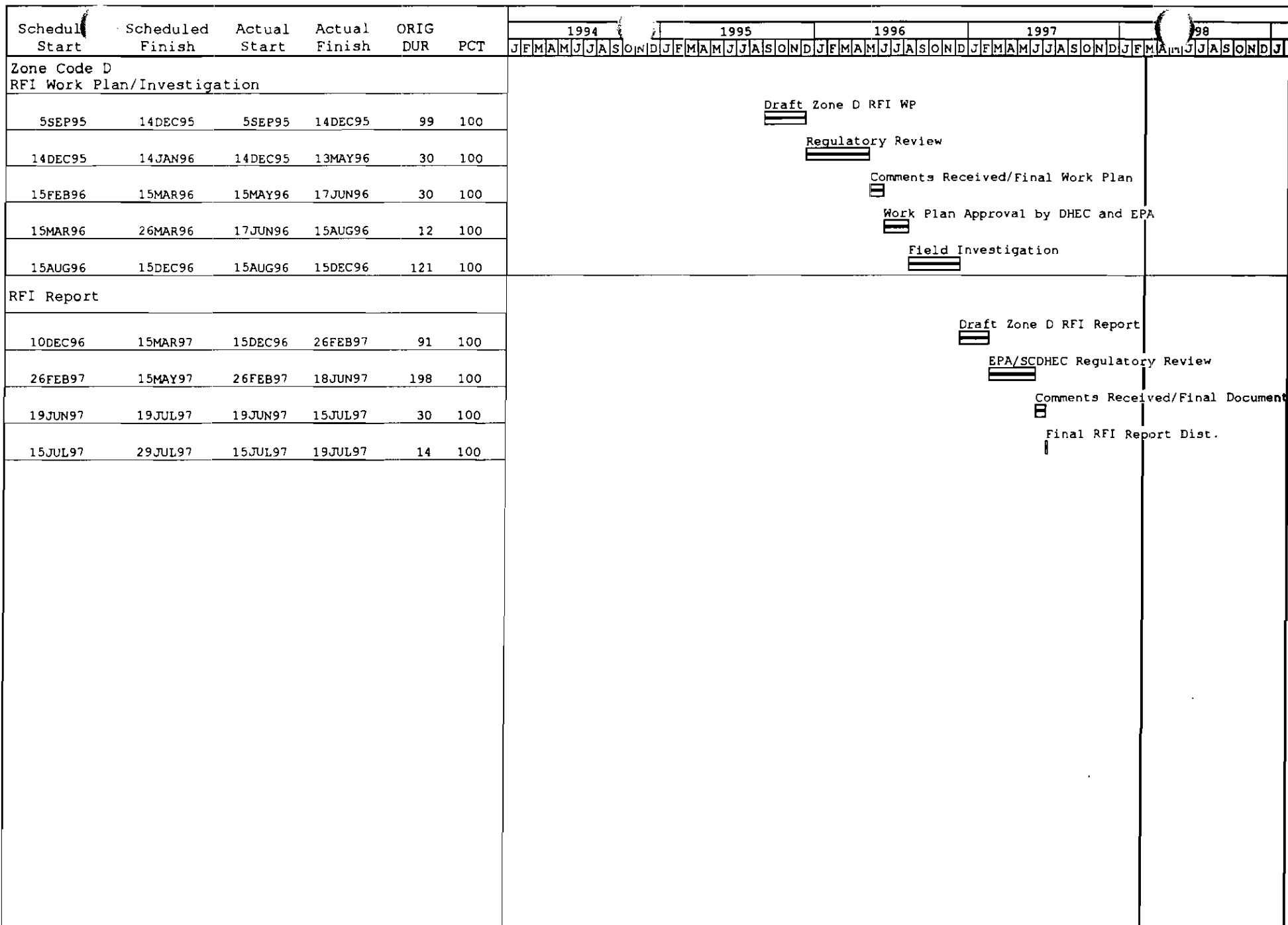
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Naval Base Charleston  
 Corrective Action Management Plan

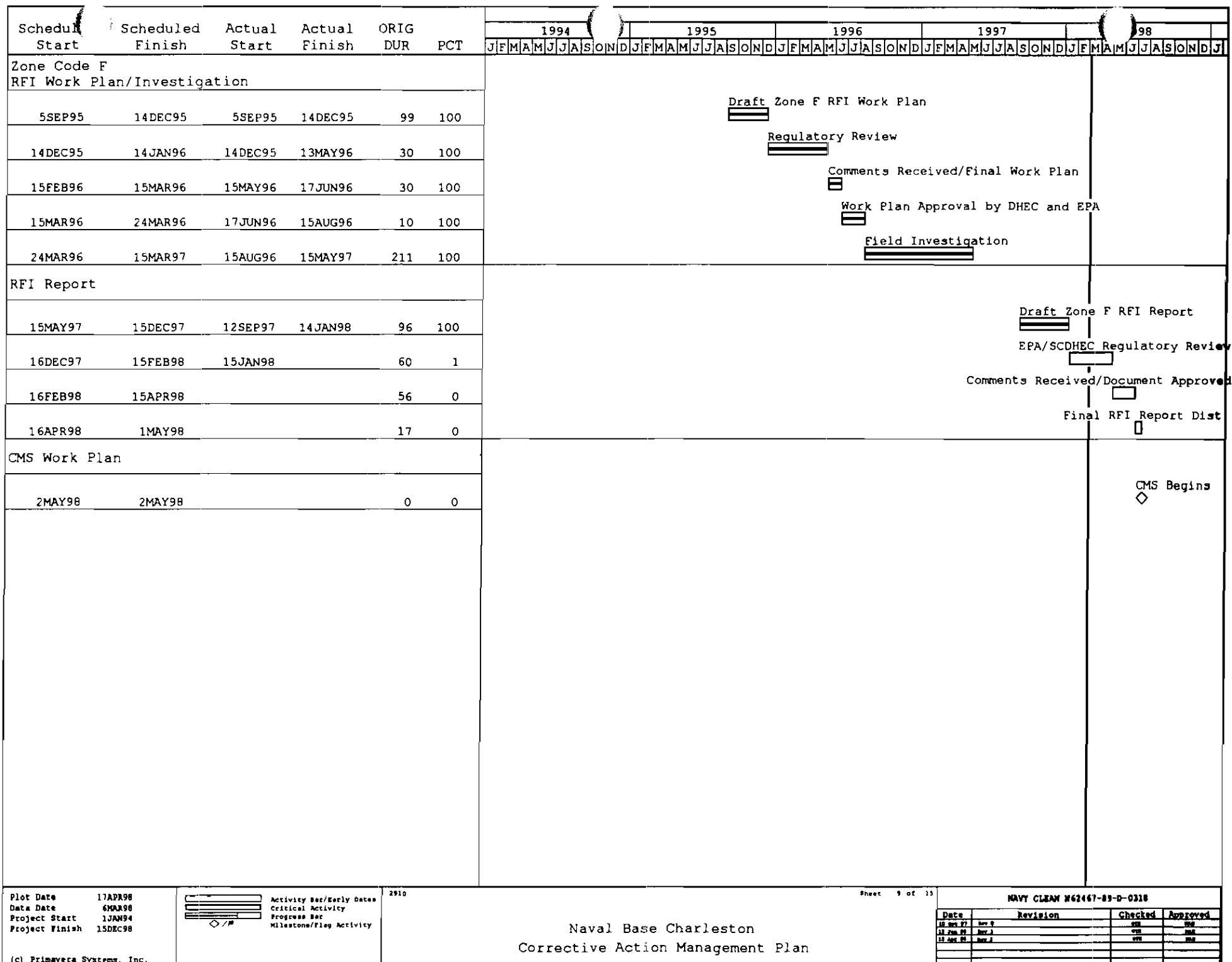
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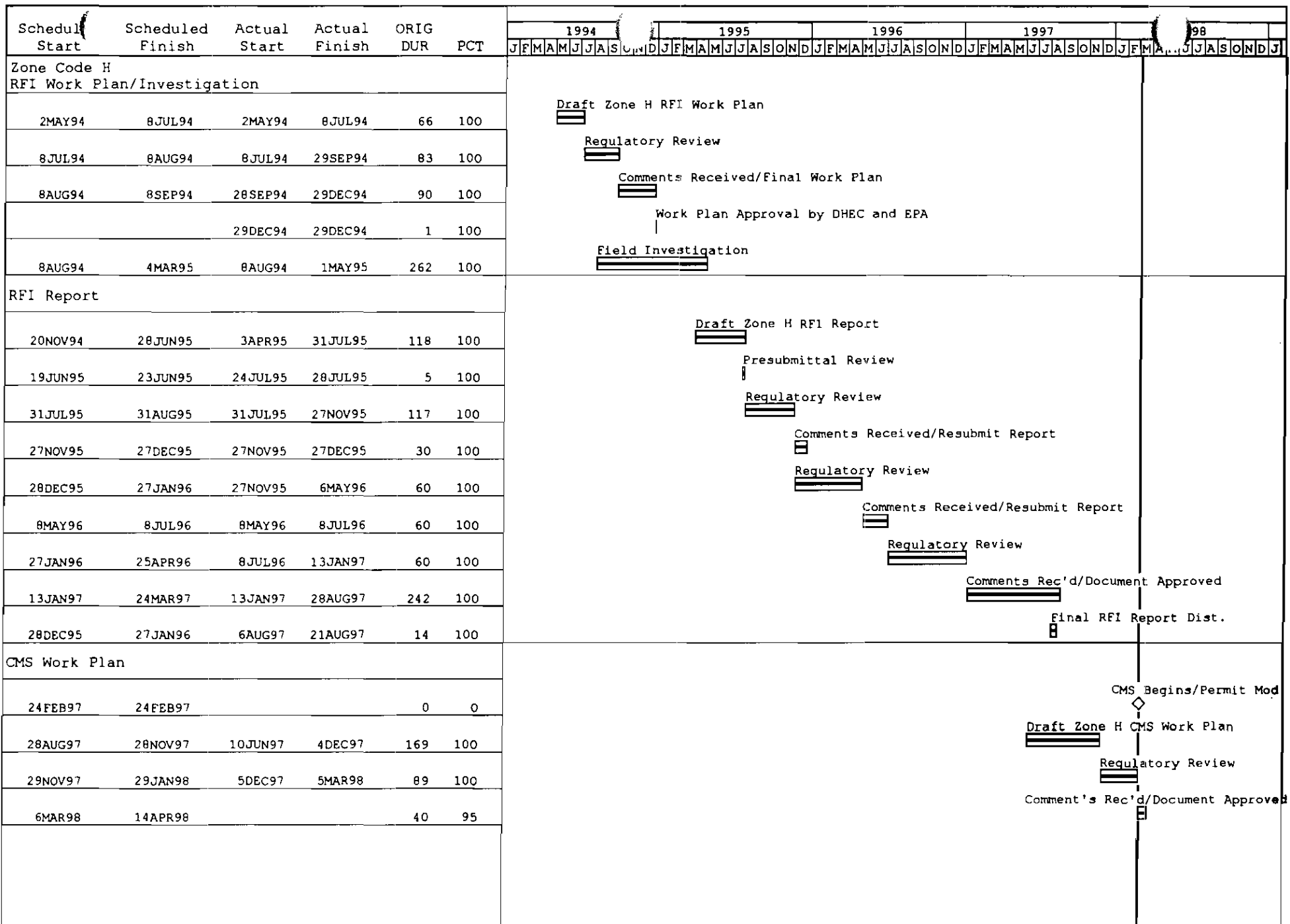




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Scheduled Start	Scheduled Finish	Actual Start	Actual Finish	ORIG DUR	PCT	1994												1995												1996												1997												1998													
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Zone Code G																																																																			
RFI Work Plan/Investigation																																																																			
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Plot Date 17APR98  
Data Date 6MAR98  
Project Start 1JAN94  
Project Finish 15DEC98



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

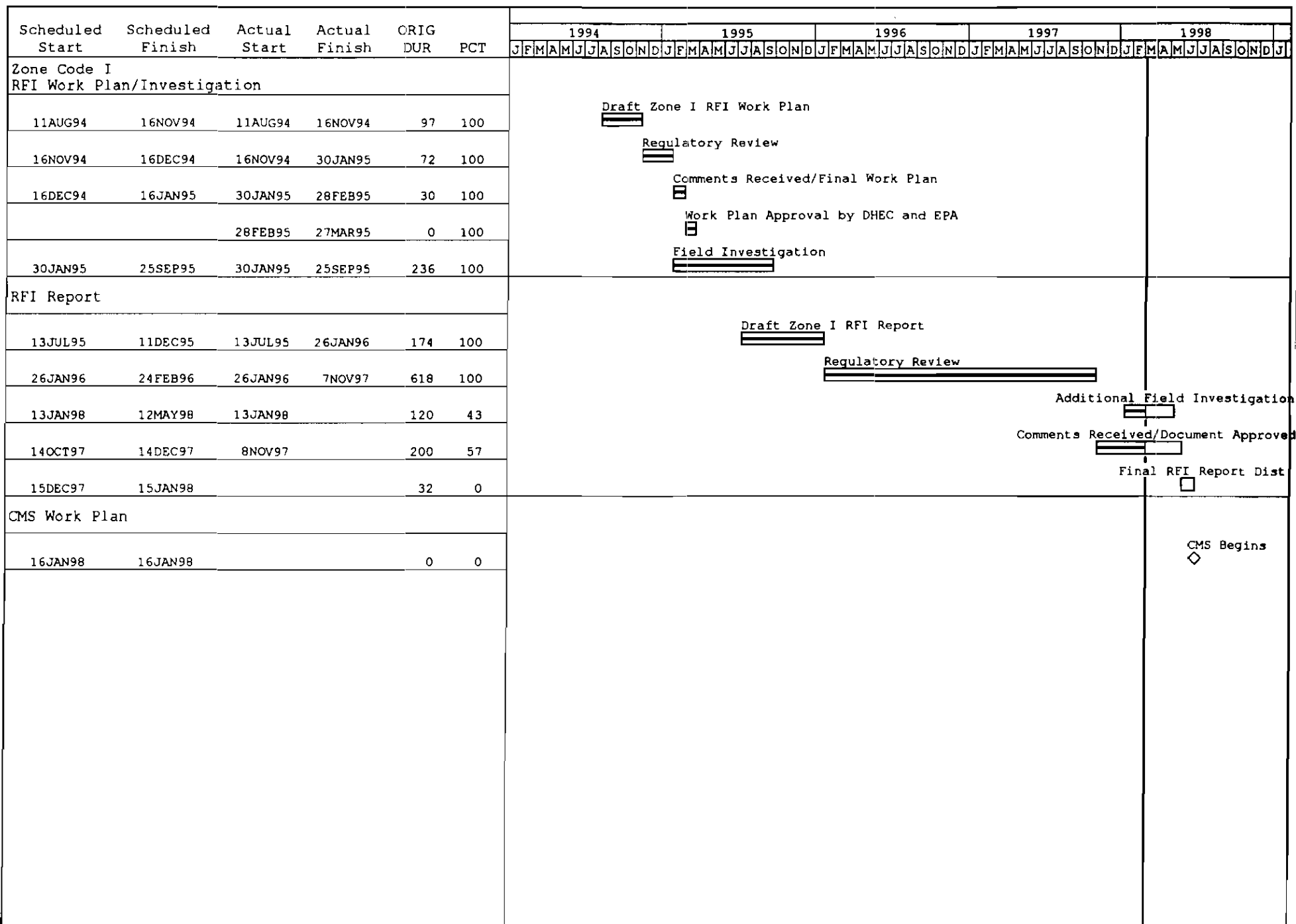
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Naval Base Charleston  
Corrective Action Management Plan

NAVY CLEAN M62467-89-D-0310

Date	Revision	Checked	Approved
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12 Feb 97	Rev 1	cm	cm
11 Jan 97	Rev 1	cm	cm



Plot Date 17APR98  
Data Date 6MAR98  
Project Start 1JAN94  
Project Finish 15DEC98



Activity bar/early dates  
Critical Activity  
Progress bar  
Milestone/Flag Activity

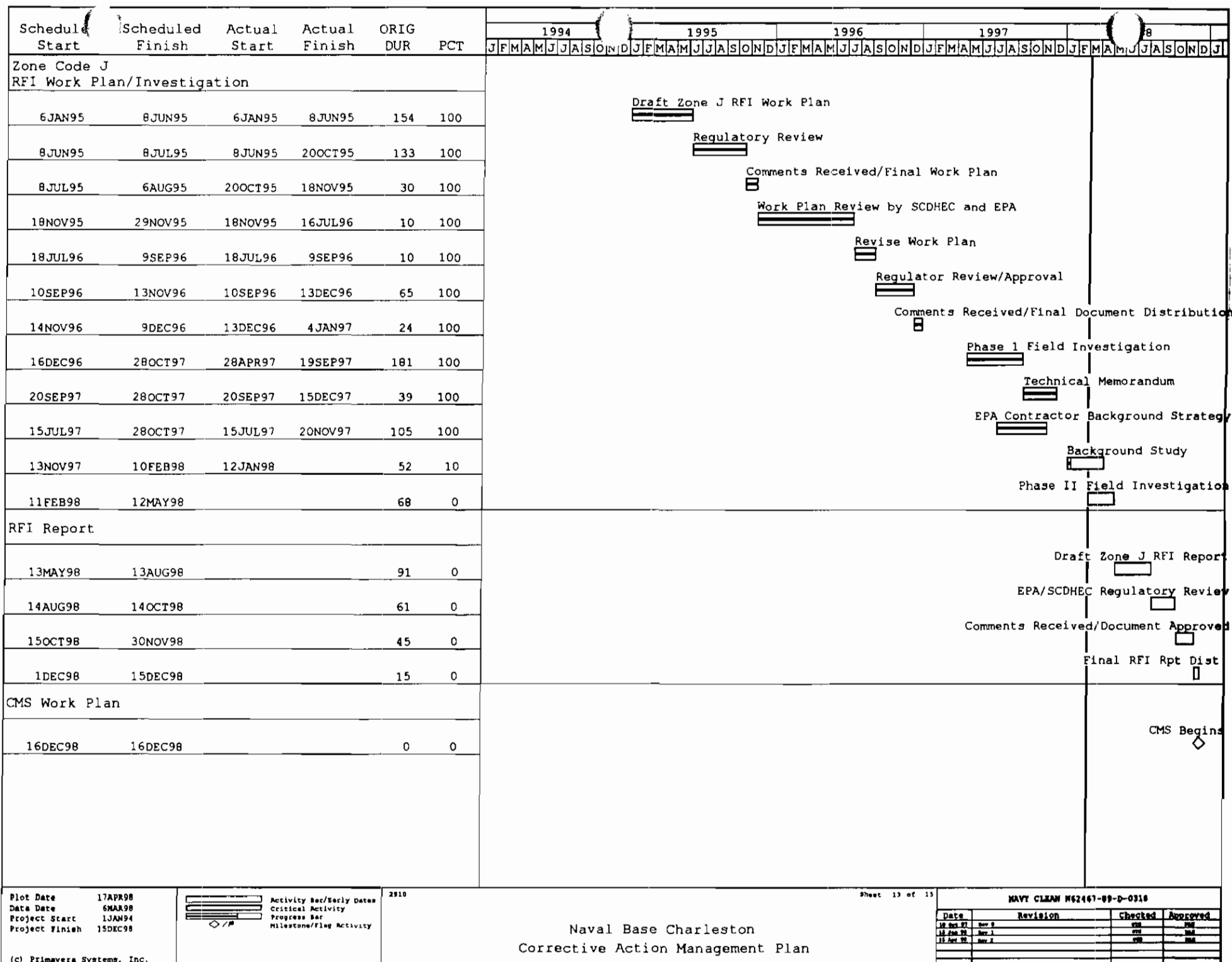
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NAVY CLEAN W62467-89-D-0318

Date	Revision	Checked	Approved
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11 Jun 98	Rev 1	cm	cm
11 Jun 98	Rev 2	cm	cm

Naval Base Charleston  
Corrective Action Management Plan



Plot Date 17APR98  
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Project Start 1JAN94  
Project Finish 15DEC98



Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

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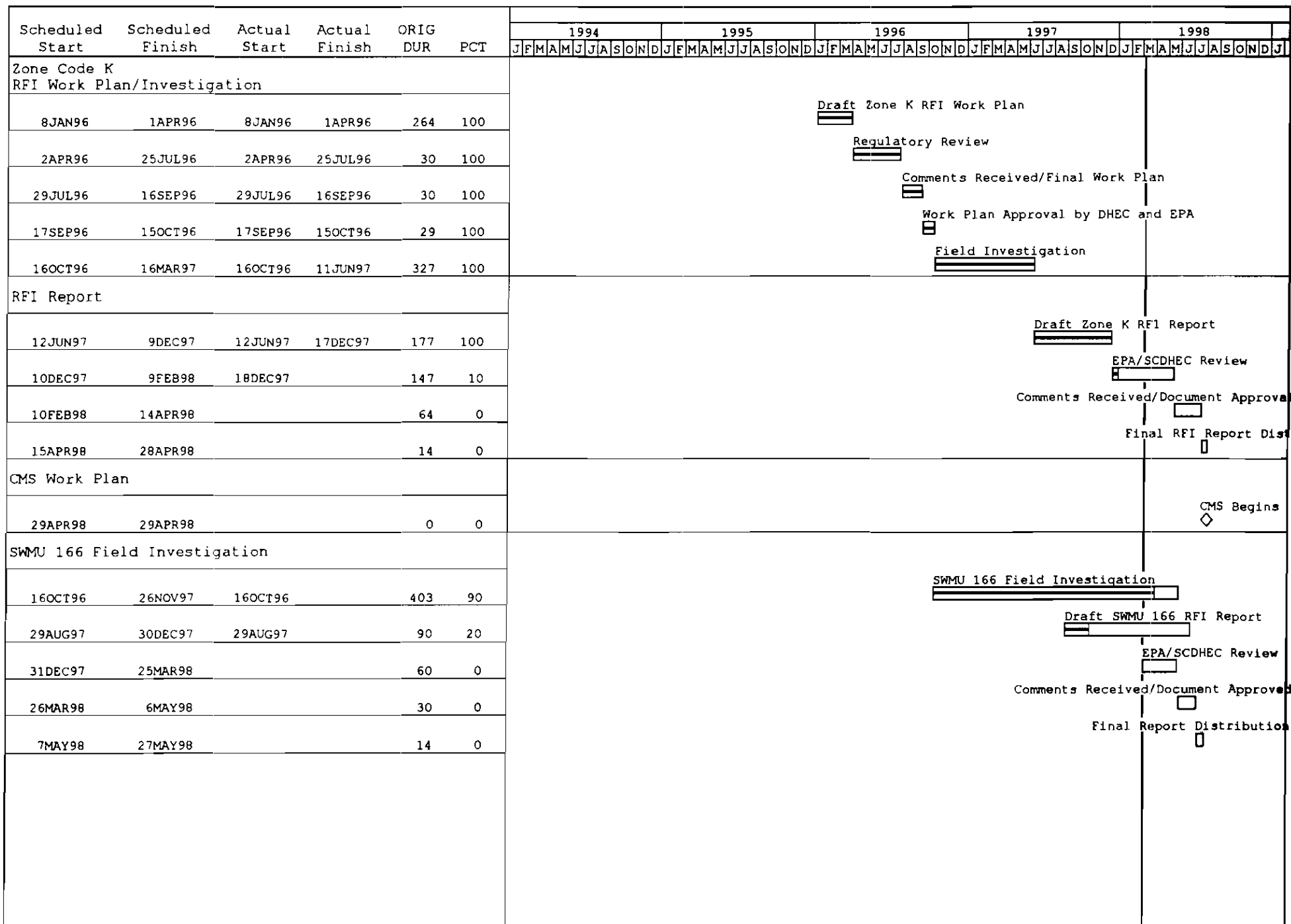
Sheet 13 of 15

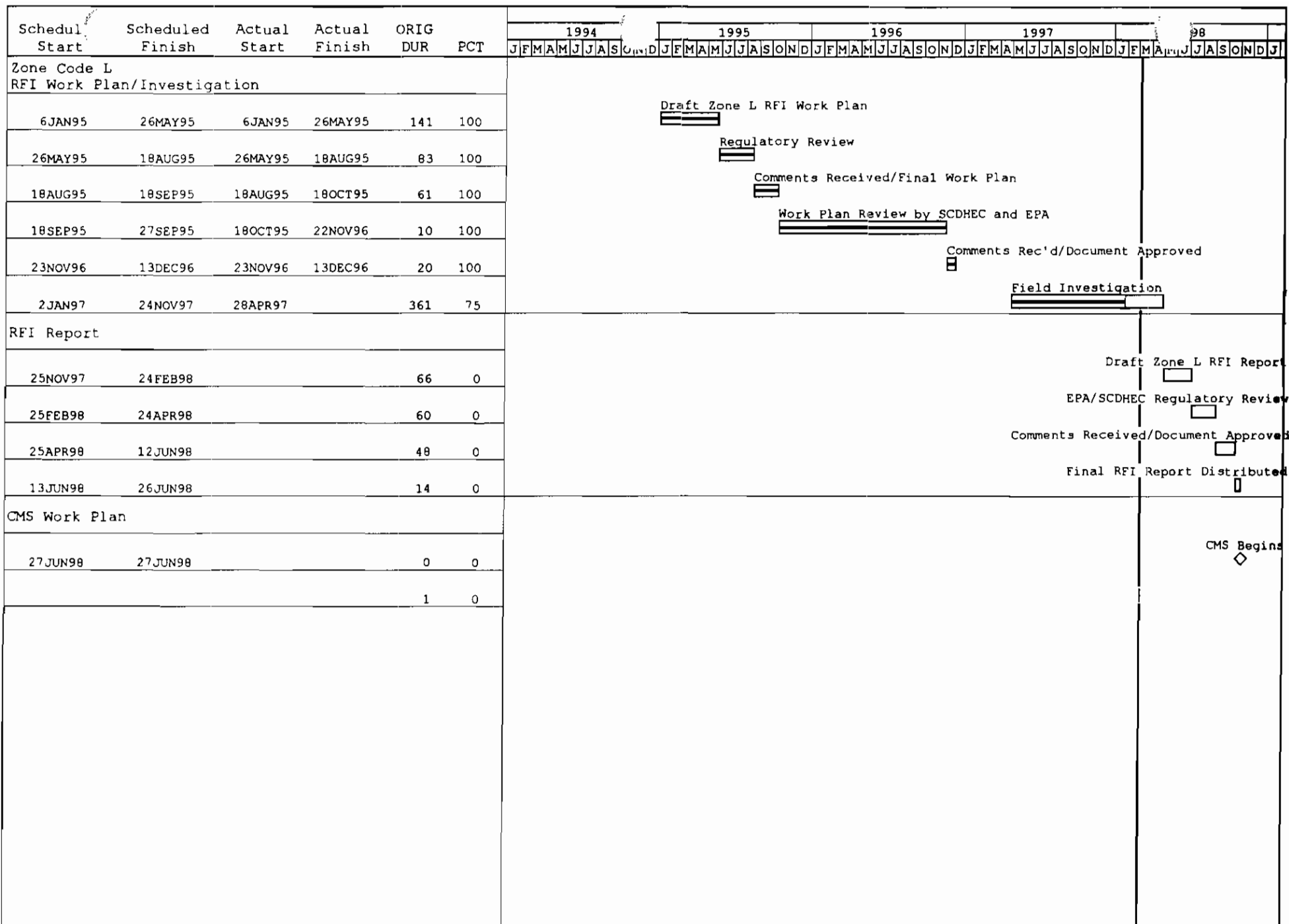
NAVY CLEAN W62461-89-D-0318

Naval Base Charleston  
Corrective Action Management Plan

Date	Revision	Checked	Approved
10 Sep 97	Rev 1	OK	OK
10 Sep 97	Rev 2	OK	OK
11 Sep 97	Rev 3	OK	OK







Plot Date 17APR98  
Data Date 6MAR98  
Project Start 1JAN94  
Project Finish 15DEC98

Activity Bar/Early Dates  
Critical Activity  
Progress Bar  
Milestone/Flag Activity

2910

Sheet 15 of 15

NAVY CLEAN N62467-89-D-0318

Naval Base Charleston  
Corrective Action Management Plan

Date	Revision	Checked	Approved
10 Sep 97	Rev 5	SM	SM
11 Feb 98	Rev 1	SM	SM
11 Sep 98	Rev 2	SM	SM

**NAVBASE CHARLESTON  
RFI/CMS STATUS REPORT  
PERIOD: SUMMARY OF  
01 October 1998 To 31 December 1998**

**I. INTRODUCTION**

The following quarterly status report has been prepared to satisfy condition II.E.3.a of the Part B Permit Renewal dated 5 December 1994 for Naval Base Charleston (NAVBASE). The requirements of this condition are in effect since the total elapsed time to complete the RCRA Facility Investigation (RFI) is projected to be greater than 180 calendar days from the approval date of the *Final Comprehensive RFI Work Plan* as indicated in the Corrective Action Management Plan (CAMP).

**II. PORTION OF THE RFI COMPLETED**

**General**

Monitoring well maintenance and repair has been an ongoing task since the issuance of a memo by SCDHEC last year which cited examples of monitoring wells that were observed to be in disrepair due primarily damage caused either by tenants or corrosion from prolonged exposure to the weather. During this period 66 new well tags were ordered to replace ones that were either damaged or missing.

The second round monitored natural attenuation sampling event was completed in early October and the data deliverables were received from the laboratory in November. Preparation of an interim report is currently underway with and a mid-March delivery date to the project team has been set.

Representatives from SOUTHDIV, SCDHEC, and EnSafe meet in Columbia, SC on 29 October 1998 to discuss the evaluation of inorganics in groundwater which has been commonly referred to as the "basewide groundwater study". The low level detection of trace metals continues to be a lingering issue for multiple zones. The most notable accomplishment was the agreement reached to sample a number wells and the set of decision rules pertaining to how the data from the wells would be evaluated. At the end of November, EnSafe submitted a proposal to the project team to sample 15 wells and collect filtered and unfiltered samples to be analyzed for selected inorganics. The proposal was accepted at the December project team meeting and EnSafe began coordinated the sampling effort which will begin the first week of January 1999.

**Task 2901 - Zone A**

Implementation of the scope of work outlined in the *Final Zone A CMS Work Plan* was completed even though the regulatory agencies have yet to formally approve the document. The decision to proceed with the work was based on verbal indications by the regulators

that all significant issues appear to have been adequately addressed. The majority of the work was completed during the period from 12 October to 30 October 1998. Evaluation of the data is currently underway to determine if any data gaps beyond those identified at SWMU 39 remain in Zone A.

The latest groundwater data still failed to fully answer questions regarding the distribution of groundwater contamination at SWMU 39. As a result, well permit applications were submitted to SCDHEC in December to get approval to install several more wells at the site.

**Task 2902 - Zone B**

All tasks for Zone B are 100 percent complete, and no further action is required.

**Task 2903 - Zone C**

Comments on the *Draft Zone C CMS Work Plan* were received from SCDHEC via e-mail on 23 October 1998. A response to the comments was prepared and discussed during a conference call between the Navy, SCDHEC, and EnSafe on 20 November 1998. The *Final Zone C CMS Work Plan* was submitted to the regulatory agencies on 23 December 1998 for review. Approval of the document was still pending at the end of the reporting period.

**Task 2904 - Zone D**

All tasks for Zone D are 100 percent complete, and no further action is required.

**Task 2905 - Zone E**

During the review of the *Draft E RFI Report* it was discovered that AOC 621, the former battery cracking pad, was not mentioned along with SWMU 5 and AOC 605 with which it was associated. The three combined sites were the subject an interim measure removal; however, the removal and confirmation sampling focused on lead and only addressed about half the area of AOC 621. At SCDHEC's request, plans were made to collect several more soil samples from the area that was not addressed by the interim measure. The sampling is currently planned for January 1999.

**Task 2906 - Zone F**

The *Final CMS Work Plan* for AOC 607 was approved by SCDHEC on 8 October 1998. Field work consisting of soil borings and temporary monitoring wells installed within the footprint of the former dry cleaning building slab began on 5 October 1998. Also as part of the CMS, a treatability study to evaluate the effectiveness of soil vapor, vacuum enhanced groundwater extraction was proposed. The draft treatability study work plan was submitted to the project team on 24 December 1998 for review and comment.

#### **Task 2907 - Zone G**

In November, one additional monitoring well was installed at AOC 613 which is one of the sites associated with the fuel distribution system that could not be transferred from the RCRA program to the petroleum program. The new well was installed downgradient of a well containing free product and elevated arsenic levels.

#### **Task 2908 - Zone H**

The primary work performed in Zone H during the current period was evaluation of the CMS analytical data to determine initially if any obvious data gaps exist. The data gaps identified were the completion of the SWMU 9 boundary delineation by the DET, an additional well at SWMU 14 down gradient of the area where the DET performed the interim measure to remove the decontaminating agent canisters, a free product removal treatability study at SWMU 17, and the collection of a second round of groundwater samples from specific wells as scoped in the CMS work plan.

At the December project team meeting, the project team agreed with the concept of proceeding with development of the CMS report for the "minor" sites and then submitting the CMS report for the 3 "major" sites (SWMUs 9, 14, and 17) at a later date when all the necessary data has been collected. The intent is to prevent further delay of submitting the CMS report for smaller sites where the work has been completed for some time while waiting on the completion of field work at the larger sites.

#### **Task 2909 - Zone I**

At the 29 October 1998 meeting in Columbia, SC discussed above, members of the project team reviewed the current status of Zone I. Additional sampling needs were identified for SWMU 12, AOC 677, AOCs 678/679, and AOC 681. Groundwater data for AOC 680 was presented and it was agreed that any further investigation of the site should be performed in conjunction with the UST assessment being performed at the site. The group also agreed that preparation of the *Final Zone I RFI Report* should continue and that the additional data generated by the sampling performed at the sites listed above should be submitted as an addendum later.

#### **Task 2910 - Zone J**

No significant activity occurred in Zone J this period.

#### **Task 2911 - Zone K**

The *Final CMS Work Plan* for SWMU 166 was approved by SCDHEC on 8 October 1998. The installation of additional monitoring wells at the site began on 5 October 1998. Also as part of the CMS, a treatability study was proposed to evaluate the effectiveness of anaerobic-aerobic sequential treatment for groundwater. The draft treatability study work plan was submitted to the project team on 24 December 1998 for review and comment.

Comments on the *Draft Zone K RFI Report*, excluding SWMU 166, were received from SCDHEC via e-mail on 7 October 1998. An addendum to the report to address SWMUs 166 and 185 was delivered to the project team on 25 November. A preliminary response to the SCDHEC comments on the *Draft Zone K RFI Report* was submitted to the project team on 11 December 1998. The response outlined the need for additional soil and groundwater sampling at several sites to address concerns raised by SCDHEC.

**Task 2912 - Zone L**

The Draft Zone L RFI Report was delivered to the project team on 23 December 1998 for review and comment.

**III. SUMMARIES OF FINDINGS**

The latest findings to date are generally summarized and discussed in detail at the monthly project team meetings where handouts including data have been distributed in lieu of presenting the data quarterly in this report. Project team meeting minutes with the meeting handouts are maintained at the project team office located on Naval Base Charleston.

**IV. DEVIATIONS FROM APPROVED WORK PLANS THIS REPORTING PERIOD**

There were no known deviations from the approved RFI Work Plans for this reporting period.

**V. SUMMARY OF CONTACTS WITH LOCAL COMMUNITY PUBLIC INTEREST GROUPS OR STATE GOVERNMENT**

As of June 1997 the Restoration Advisory Board (RAB) agreed to meet on a bi-monthly basis. Minutes from the October and December 1998 meetings are enclosed as Attachment A.

**VI. SUMMARY OF PROBLEMS OR POTENTIAL PROBLEMS AND ACTION TAKEN TO RECTIFY PROBLEMS**

There were no problems or potential problems identified during this reporting period.

## **VII. KEY PROJECT PERSONNEL**

Tony Hunt was promoted to the position of BEC for the Charleston Naval Complex. David Dodds was selected by SOUTHDIV to serve as Remedial Project Manager.

## **VIII. PROJECTED WORK FOR THE NEXT REPORTING PERIOD**

### **Document Preparation and Data Evaluation:**

- Submit the revised *Zone I RFI Report* for review and comment.
- Submit the *Final Zone A CMS Work Plan*.
- Continue with the CMS data evaluation for Zone A.
- Submit the *Final Zone C CMS Work Plan*.
- Prepare the treatability study design documents for SWMU 166 and AOC 607.
- Continue with the CMS data evaluation for Zone H.
- Continue preparation of an interim report for the MNA evaluation.
- Initiate revisions to the *Zone K RFI Report*.

### **Field Activities:**

- Zone H CMS at SWMUs 9, 14, and 17.
- Zone A CMS at SWMUs 2, 39, & SWMU 42/AOC 505.
- SWMU 166 CMS - well installation and pump test.
- AOC 607 CMS - well installation and pump test.
- Zone I - AOC 681 soil sampling.
- Zone K - soil and/or groundwater sampling at SWMU 163 and AOCs 693, 694, & 698.

## **IX. COPIES OF DAILY REPORTS, INSPECTION REPORTS, LABORATORY DATA**

Daily activities are recorded in accordance with the Data Management Plan included as Section 14 of the Final Comprehensive Sampling and Analysis Plan. Photocopies of these daily records have not been included with this status report; however, this information is available for review upon request.

Per agreement with SCDHEC and EPA, hard copies of the analytical data are not being submitted. A copy of the data is maintained at the EnSafe office in Charleston and is available for review.

## **X. CORRECTIVE ACTION MANAGEMENT PLAN (CAMP)**

As agreed upon by the project team, the CAMP will normally be updated and submitted quarterly as part of the *Quarterly RFI Status Report*. The baseline schedule presented in the CAMP was revised in October 1997 and submitted as Appendix F-15 of the RCRA Part B permit renewal submitted to SCDHEC. The CAMP was not updated for this submittal because it is scheduled as an agenda topic for the February project team meeting at which time the necessary updates will be agreed upon.



NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING  
Minutes of 13 November 1998

Live Oak Community Center  
2012 Success Street, North Charleston, SC

RAB Members Attending

Mr. Ben Addison  
Mr. Reese Batten (for Tony Hunt)  
Ms. Ann Clark  
Mr. Bobby Dearhart  
Mr. Tom Fressilli  
Mr. Wilburn Gilliard  
Mr. Don Harbert  
Mr. Louis Mintz  
Mr. Henry Shepard  
Ms. Fouche'na Sheppard  
Mr. Dann Spariosu

Guests Attending

Mr. Paul M. Bergstrand	SCDHEC
Mr. Johnny Tapia	SCDHEC
Mr. Scott Glass	U.S. Navy
Ms. June Mirecki	College of Charleston
Mr. Joseph M. Land, Sr.	Galileo Quality Institute
Mr. Mike Reubish	CEERD
Ms. Susan Dunn	Redevelopment Authority
Mr. Ted Blahnik	EnSafe Inc.
Mr. Larry Bowers	EnSafe Inc.
Ms. Kris Collins	EnSafe Inc.
Mr. Fred Erdmann	EnSafe Inc.
Mr. Keith Johns	EnSafe Inc.
Mr. Ed Mears	EnSafe Inc.

Introduction of the RAB members and Guests

Mr. Louis Mintz, Community Co-Chair, brought the meeting to order at 6:00 p.m. Member and audience introductions were made.

### Administrative Remarks and Discussion of Last Meeting Minutes

Mr. Mintz invited Ms. June Mirecki, College of Charleston, to comment on her concerns and interests. Ms. Mirecki offered her support, and the support of her graduate students for the Technical Assistance Program funds. Ms. Mirecki stated her qualifications and her familiarity with the environmental problems in the area, including the Navy base and some of the adjacent neighborhoods.

In response to questioning by RAB members, Ms. Mirecki expanded on her discussion of the Technical Assistance in Public Participation (TAPP) program, explaining that one must apply for technical assistance monies from the Navy. She stated that she was only one of several that would apply for the funds, up to \$25,000 per year for technical assistance.

She stated that the technical assistance funds would not be for analysis or investigations, but would be used more for developing a dialogue or continuing and enhancing a dialogue about technical issues related to groundwater, surface water, soil, and air quality between the RAB and the communities that are involved, and also nearby industries.

Mr. Mintz clarified that the RAB itself must first decide if it wants or needs the technical assistance provided under the TAPP program, in addition to the support presently provided by the Navy, USEPA and SCDHEC. If so, there is \$25,000 a year available.

Mr. Mintz called for discussion on the need for technical assistance, and asked if the RAB would like the full board or a subcommittee to develop a list of questions toward that end. Ms. Sheppard moved for the subcommittee to develop the list. The motion was seconded by Mr. Fressilli.

Mr. Mintz then brought up the fact sheet, drafted but now tabled, summarizing the radiological cleanup of the base. The fact sheet stated that the investigation was done in a timely and efficient manner, and that very little contamination was found. Whatever radiological contamination found was remediated.

Regarding the radiological fact sheet, Mr. Dearhart commented that Naval Sea Systems Command feels they have put out adequate information, along with the EPA and State of South Carolina, that Naval Base Charleston was released for unrestricted use from radiologic controls. All of this information is presently located in the Information Repository. Their feeling was that further information released would needlessly bring up more questions.

Mr. Addison suggested publishing a fact sheet stating the information can be found in the Repository. Mr. Dearhart said that this probably would be acceptable.

Mr. Mintz asked for comments on the minutes from the last meeting. There were no comments.

## Subcommittee Reports

### *Community Relations Subcommittee*

Mr. Mintz volunteered to contact the media to see if the RAB meetings could be mentioned in the newspaper and on Monday or Tuesday daytime local programs.

There were no other subcommittee reports.

Mr. Dearhart suggested putting information about Charleston Naval Complex cleanup in a Department of Defense publication entitled "BRAC Talk." Discussion was supportive.

### Environmental Cleanup Progress Report

Mr. Batten summarized the environmental cleanup progress since the last RAB meeting.

- Zones B, C, and D: Work has been completed under the RCRA Facility Investigation (RFI).
- Zones B and D: Corrective Measures Studies (CMS) reports were completed and accepted.
- Zone A: Additional work at SWMU 39 is on schedule.
- Zones E, F, and G: By the next RAB meeting, the Navy expects to have this RFI report under regulatory review.
- Zone H: RFI completed February 1998.
- Zones I and K: RFI completion scheduled for December 1998.

Mr. Dearhart provided an update on the recent activities by the Environmental Detachment.

- They have received approval to backfill SWMU 38, the site of a pesticide spill. It will be backfilled within a week.
- Approximately 30,000 gallons of oil have been recovered at SWMU 8.
- Excavations in Zone G will be finished by the end of next week.
- At SWMU 11, soil is being excavated and a barrier is being installed to prevent runoff into drainage ditches.
- At SWMU 166, the site of a past trichloroethene (TCE) release, excavations have been done in accordance with the work plan. Sampling has been done. Additional excavation may be required to meet the remedial end points defined by SCDHEC.

Mr. Dearhart reported that the first tank at the Chicora Tank Farm has been demolished and the cap has been installed. Dirt was put back on top of the cap and the site will be seeded this week. Cleaning has been started on the pump rooms of the second and third tanks in preparation for demolition, if it is determined demolition will happen.

Mr. Mintz discussed the conveyance of the Chicora Tank Farm property to City of North Charleston or the school district. He referred to an October 12 letter from Ray Anderson, City of North Charleston. In the letter, the City of North Charleston asked the Charleston County School District if they would take the rest of the property if the City of North Charleston took five acres. At this point, no agreement had been reached. It was noted by Mr. Dearhart that if nobody

wanted the property for reuse, the tanks would probably be left in place and filled with inert material.

Mr. Mintz suggested someone speak to the Officer of the Land Property Management at the School District in order to seek a resolution. There were no volunteers.

Ms. Mirecki commented on the possibility of the Chicora Tank Farm property as a Brownfield redevelopment site. She stated that Brownfield is an EPA program whose purpose is to enable development of under-utilized sites primarily for industrial or redevelopment purposes.

### Treatability Study Presentation

Larry Bowers, an engineer with EnSafe, made a presentation on the chemical and physical properties of chlorinated solvents. Mr. Bowers spoke specifically of two sites at the Navy base. At Area of Concern (AOC) 607 - Building 1189, the former dry cleaning building - both groundwater and soil are impacted by chlorinated solvents. SWMU 166, the Naval Annex, also is impacted by chlorinated solvents in the groundwater and soil.

Mr. Bowers reported that there are four types of compounds located at AOC 607 and SWMU 166: PCE (tetrachloroethylene, also known as "perk "), TCE (trichloroethylene), DCE (dichloroethylene), and VC (vinyl chloride). These are halogenated compounds or halogenated hydrocarbons (also called chlorinated compounds), and considered to be known carcinogens. They can target the kidney and the liver, mucus membranes, eyes, and the upper respiratory tract of exposed individuals.

Mr. Bowers explained some basic chemical physical properties of these solvents using six parameters. Each parameter has a critical value. Engineers can plan remedies and cleanup techniques depending on whether the chemical concentrations are above or below that critical value.

1) First is molecular weight, with a critical value of 400 grams per mole. All four compounds are under 400. This means the behavior of these compounds can be predicted fairly accurately.

2) Vapor pressure has a critical value of 0.001 millimeters of mercury. All four compounds have vapor pressures higher than this number. This means these compounds have the tendency to be volatile or "evaporate" into the air. An engineered solution can take advantage of the volatility of the compounds.

3) Solubility has critical value range of 0 to 100 milligrams per liter. All four compounds are greater than 100, and the highest is 5500. These compounds are extremely soluble. They have the tendency to "dissolve" in water, moving from a solid to a liquid phase. This can be more of a disadvantage than an advantage in environmental assessment and remediation work. However, engineered solutions are being proposed at the two impacted sites that will take advantage of the high solubility of the chlorinated compounds.

4) Henry's Law Constant is a measurement of how easily the compounds move from a liquid state to a gaseous state, or the other way around. All four compounds are well above this parameter's very low critical value (0.000005 atmosphere cubic meter per mole). This means that these compounds would prefer to exist as a gas, and are therefore "strippable." In engineering terms, ex-situ stripping is extracting groundwater from the aquifer and running it through a system that creates the proper conditions for the compound to leave the water and enter the air. Stripping can also be done in-situ (where the contaminant lies - in the ground or subsurface) by directing air into the groundwater. This can strip volatile compounds from the groundwater.

5) Organic Carbon Water Partition Coefficient, OCWPC. The critical value is 10 to 10,000 kilograms per liter. This is the measurement of how readily the compound sorbs (attaches) to organic particles in the soil. A high OCWPC indicates a compound that has a tendency to sorb to organic parts of the soil. Because all four compounds have OCWPC values in between those numbers, it is hard to come to a conclusion about these compounds. Mr. Bowers noted that it can be difficult to design remedial systems for highly sorbed compounds in soil.

6) Density has a critical value of 1 gram per cubic centimeter, which is the density of water. All four compounds have a density greater than 1, so they are denser than water and have a tendency to sink. An item that's denser than water is called a dense non-aqueous phase liquid or DNAPL. Chlorinated solvents, which are the contaminants at these sites, have a tendency to move down through the soil, then sink through groundwater until they run into something that stops them. This is usually a clay or rock layer. At these clay or rock layers, dense materials like DNAPLs will accumulate, where they will act as continued sources of contamination.

Additionally, engineers must consider biodegradation and temperature when looking at remedies. These four compounds are biodegradable, which means they degrade naturally in the environment under certain conditions. Also, when the temperature is increased, these compounds mix more easily with water, mobilizing them. This makes the compounds easier to remove from the environment.

Ted Blahnik, an EnSafe engineer, spoke on potential remediation technologies for the base, and these two sites in particular. First, he reported that the investigations are coming to a close, and they are now moving on to remediation of the two sites, AOC 607 and SWMU 166. Although some contaminated soil (sources of groundwater contamination) were successfully removed, there is still a groundwater problem at SWMU 166.

Mr. Mintz had a question concerning planting poplar trees as a method of removing contaminated groundwater. Mr. Blahnik explained that using trees or other plants is a technique called phytoremediation. Where groundwater is relatively shallow, plants can be used to soak up the groundwater. Poplar trees are sometimes used because they use a lot of water. The plant takes up the contaminated water, then breathes it into the atmosphere. Some contaminants will inhibit the growth of the tree if concentrations are too high. Mr. Blahnik mentioned that this method is a possibility at some sites at the Naval Base.

Mr. Blahnik's presentation concentrated on two categories of corrective measures for groundwater:

- 1) ex-situ: where groundwater is pumped out of the ground and treated above ground, and
- 2) in-situ: where things are injected into the ground to break the chemicals down, or things are added to make the chemicals easier to get out of the groundwater.

Mr. Blahnik noted that sometimes the best remedy is to incorporate both ex-situ and in-situ treatment technologies.

#### *Ex-situ solutions*

- Pump and treat is a method where a well is used to pump water out of the aquifer, where it is treated above ground. At these sites at the Naval Base, there is contamination in the soil and groundwater, and DNAPL contaminants at the bottom of the groundwater, where they sink to. A typical pump and treat system would not help the soil contamination or the DNAPL conditions.

- Vacuum extraction is a similar concept, *but slightly more efficient*. A vacuum is applied to the well to pull contaminated water into the well, but it also pulls air through the soil and into the well. The vacuum improves groundwater flow to the well, so more water is extracted and DNAPL removal is improved. In addition, air moves through the soil more quickly than normal, stripping the volatile contaminants from the soil. This removes some of the source material that continues to contribute to groundwater contamination.

- Monitored natural attenuation. Natural attenuation can occur if there are not toxic levels of contamination, such as exist with a DNAPL. Monitoring the process adds assurances that the natural breakdown is actually working. With monitored natural attenuation, heat and biochemical additives can be used to enhance the process. This method counts on natural microorganisms to break down the contamination. This works well if the contamination concentration is at a level where the bugs will eat the contamination. Mr. Blahnik stated it works well with gasoline, but not as well with chlorinated solvents. It does not work where there is DNAPL because the contaminants are in a concentrated state.

- Heat is a method to be considered. Injecting steam works well in sandy aquifers because it moves through the sand, heats the water, and everything moves faster towards an extraction well. Electrical heating works better in soils that conduct electricity better than sand, such as clay. Integrated heating uses steam and electricity which would move through a combination soil, like sand and clay.

Using steam, one or two central extraction wells are used, and a vacuum is applied. On the perimeter of the zone to be cleaned, steam is injected at several points. Where the steam is injected, steam moves through the unsaturated zone and the water gradually heats up. The steam and heated water gradually move through the zone of contamination toward the extraction wells. As it moves, the volatile compounds become more volatile and more mobile. They are less "stuck" to the soil and more likely to move to the extraction well. This method has been shown to reduce contaminant levels by 90 to 95 percent in six to eight months.

Electrical heating is a high-intensity, short-term, more expensive solution. It typically costs a quarter million dollars to get it started, and then for every quarter acre to an acre, depending on soil type, it can be another quarter million dollars. However, this is a good solution for removing DNAPL, provided you know where it is. This method is similar to steam injection wells, but the steam injectors are replaced with electric heating probes. Near the vacuum extraction well, you place a neutral probe to draw the electric charge and, essentially, the aquifer in between is boiled. Ideally, when this process is turned off, everything is clean.

There are less intensive and longer term in-situ solutions. These include biochemical enhancements or other methods that make the contaminant degrade faster where it sits, underground.

Anaerobic enhancements are methods where nutrients and substrate (food for the microorganisms) are added to the contaminated zone. The microorganisms that break down chlorinated solvents require an oxygen-poor environment. Other catalysts include iron and methane, or anything that will drive down the amount of oxygen in the groundwater. This process breaks down the PCE to TCE, TCE to DCE, and DCE to Vinyl Chloride. However, anaerobic breakdown is slow for DCE and even slower for Vinyl Chloride. Therefore, pumping air into the ground with an injection well or putting oxygen release compounds in the water through groundwater wells downgradient ("downstream") of the anaerobic zone can improve the breakdown of these compounds.

Mr. Blahnik reported that the Navy's current planning calls for anaerobic/aerobic sequencing. This involves injecting - into the groundwater - nitrate and phosphate in the form of fertilizer to increase microbial growth and drive the oxygen content down. The microorganisms multiply and use up more oxygen. When the oxygen is gone or reaches very low concentrations, microorganisms begin using other compounds to survive. Some of these compounds include PCE, TCE, DCE and, to a limited extent, Vinyl Chloride.

Next, air is injected, creating aerobic conditions. In this oxygen-rich condition, some of the solvents volatilize, and some degrade aerobically. Downgradient of the aerobic zone, low-flow groundwater extraction wells remove some groundwater and circulate it back to the beginning of the anaerobic area for additional treatment. The down side to this method is that the DNAPL is not affected. Nothing can be done biologically to get rid of DNAPL because it is too concentrated and toxic to microorganisms.

Mr. Blahnik commented on how the Navy is proposing to test some of these methods on actual contamination at SWMU 166 and AOC 607.

AOC 607 sits over a sandy aquifer 10 to 12 feet below ground surface. The location of the contaminants is well defined. It's a small area. There is steam nearby. The Navy is proposing to run steam to the site, inject it in a circle around what is thought to be the highest concentration, and put a vacuum on the middle for three to six months. The Navy hopes to see an 80 to 99 percent reduction in volatile organic compounds at that site.

SWMU 166 is different in that it has very deep contamination, 40 to 60 feet below ground. A lot of the contamination has soaked into the silty clays. Some of the contamination exists as a DNAPL. Steam won't work in this area by itself. There are two options. If the DNAPL can be removed, we can use biochemical enhancements to treat a very large area. To use steam alone, as many as 40 wells would have to be put in, and it would not be cost effective. Six-phase electrical heating is another option. Ensafe is looking for the DNAPL now, and Mr. Blahnik believes they will find it. If the DNAPL is accurately located, EnSafe proposes using a short run of six-phase electrical heating, expecting to see 95 to 99 percent of the contamination removed from selected zones.

In a separate study, the Navy is going to test anaerobic/aerobic sequencing either in an area of the SWMU 166 plume which is not suspected to contain acutely toxic concentrations of solvents, or in an area which will be treated first using the six-phase heating process.

Mr. Blahnik asked for questions. Ms. Mirecki questioned what would be done when nitrate was added to their system and the nitrate level rises above 10 milligrams per liter. Mr. Blahnik responded that they would not inject greater than 10 milligrams per liter. Ms. Mirecki and Mr. Blahnik discussed spatial control on the biodegradation reactions and other technical aspects of this solution.

#### Comments and Questions

Ms. Sheppard asked Ms. Mirecki to elaborate on her discussion with Mr. Blahnik. Ms. Mirecki stated that these bioremediation strategies are largely experimental and show varying degrees of success.

Ms. Sheppard asked if the process had been successful elsewhere. Mr. Blahnik replied affirmatively. Ms. Mirecki disagreed concerning the DCE (aerobic) degradation. Mr. Blahnik said that they would have the work plan done in November.

A question was raised about whether to continue having the meetings every two months, the concern being the loss of community members because of the infrequency of the meetings. Mr. Mintz asked for comment from the board members. The general agreement was to continue meeting every two months, but to increase the frequency if the need arises.

The next RAB meeting will be December 8, 1998, at 6:00 p.m. at the Live Oak Community Center, 2012 Success Street, N. Charleston, SC.



*Meeting Adjourned*

Minutes approved by:

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Tony Hunt  
SOUTHDIVNAVFACENGCOM

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Louis Mintz  
Community Co-Chair

**NAVAL BASE CHARLESTON  
RESTORATION ADVISORY BOARD (RAB) MEETING**

Minutes of 8 December 1998  
Live Oak Community Center  
2012 Success Street  
North Charleston, SC

**RAB Members Attending**

Mr. Bobby Dearhart  
Mr. Tom Fressilli  
Mr. Tony Hunt  
Ms. Jeri Johnson  
Ms. Wannetta Mallette  
Mr. Louis Mintz  
Mr. Henry Shepard  
Mr. Dann Spariosu

**Guests Attending**

Mr. Paul M. Bergstrand	SCDHEC
Mr. Larry Bowers	EnSafe
Mr. Paul Calligan	Tetra Tech
Mr. David Dodds	Southern Division
Mr. Billy Drawdy	Southern Division
Mr. Keith Johns	EnSafe
Mr. Joseph Land, Sr.	Galileo Quality Institute
Mr. Johnny Tapia	SCDHEC
Mr. J. Michael Reubish	Citizen

**Introduction of the RAB Members and Guests**

Mr. Louis Mintz, Community Co-Chair, brought the meeting to order at 6:00 p.m. Member and audience introductions were made.

**Administrative Remarks and Discussion of Last Meeting Minutes**

Mr. Mintz called for discussion and/or comments on minutes from previous meeting. Hearing no comments, the minutes of 13 October 1998 were made final.

application to the redevelopment authority. They do want to acquire part of the property. Mr. Hunt read letter from Charleston County School District from Jerry Urbanic that stated the School District's interest in the property.

### **Discussion of Technical Assistance in Public Participation (TAPP) Program**

Mr. Mintz again asked for RAB members to submit questions that they would like to see addressed. The Community Relations subcommittee will look at the questions and see if the questions can be addressed by the technical staff of the RAB (EPA, SCDHEC, Navy, or EnSafe). If not, then there may be need for assistance. If there are no questions, the RAB will leave the TAPP program behind.

Mr. J. Michael Reubish, citizen, voiced concern over storage of transformers and associated potential PCB problems on leased property.

Mr. Shepard discussed the risks involved with leasing property. As long as the Navy owns all the real estate, any leasing action taken inherits a certain amount of risk that the site could possibly be contaminated. The Navy's position has been that it's better to go ahead and get tenants in the property for revitalization purposes and have them responsible for the maintenance and protection of the facilities.

### **Comments and Questions**

A question was raised by member about attendance of RAB members at the meetings. Discussion followed. This will be addressed at the next RAB meeting.

**Meeting adjourned.**